



3 1761 06704560 9



Digitized by the Internet Archive
in 2018 with funding from
University of Toronto

ME.
H

PRACTICAL
OBSERVATIONS
ON THE
SYMPTOMS, DISCRIMINATION, AND TREATMENT,
OF SOME OF THE MOST IMPORTANT
DISEASES

OF THE
Lower Intestines, and Anus.

PARTICULARLY INCLUDING
STRICTURE, ULCERATION, INTUS-SUSCEPTION, AND TUMOUR,
WITHIN THE CAVITY OF THE RECTUM;
AND PILES, PROLAPSUS, FISTULÆ, AND EXCRESCENCES,
FORMED AT ITS EXTERNAL OPENING.

ILLUSTRATED BY NUMEROUS CASES.

TO WHICH ARE ADDED,
SOME SUGGESTIONS UPON A NEW AND SUCCESSFUL MODE OF
CORRECTING HABITUAL CONFINEMENT IN THE BOWELS,
TO ENSURE THEIR REGULAR ACTION WITHOUT THE AID OF PURGATIVES;
ON A PRINCIPLE ESSENTIALLY CONDUCTIVE TO THE PREVENTION
OF THE ABOVE DISEASES.

By JOHN HOWSHIP,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, IN LONDON; THE SOCIÉTÉ
MÉDICALE D'ÉMULATION, IN PARIS; ROYAL MEDICAL SOCIETY OF EDINBURGH;
AND MEDICO-CHIRURGICAL SOCIETY, LONDON: AUTHOR OF PRACTICAL OB-
SERVATIONS IN SURGERY, AND MORBID ANATOMY; AND PRACTICAL TREATISE
ON THE COMPLAINTS THAT AFFECT THE SECRETION, AND EXCRETION, OF THE
URINE.

THE THIRD EDITION, WITH NUMEROUS ADDITIONS.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, BROWN, AND GREEN,
PATERNOSTER-ROW.

1824.

15080
7/9/91
3 v. in 1

TO
ROBERT HOOPER, M.D. F.L.S.

BACHELOR OF PHYSIC, OF THE UNIVERSITY OF OXFORD;

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS;

PHYSICIAN TO THE MARYLEBONNE INFIRMARY,

&c. &c. &c.

MY DEAR SIR,

HAD not our very long acquaintance taught me, that you are always ready to approve whatever may tend to promote the happiness, or comfort of mankind, I should here beg leave to apologize for troubling you, a third time, with the present essay; particularly when I reflect, that the circle of each revolving day brings to you an overflowing measure of professional anxiety, care, and fatigue, although these very circumstances, under favour of Heaven, become, in your hands, the means of widely dispensing the sweet influence of hope, and the chief blessing, health; almost at pleasure.

The kind attention with which the former editions of this little work have been received by the Public, renders me especially desirous the present impression should also possess the advantage of your patronage. The endeavour to render it less unworthy than before of that honour, has occupied some time ; and I trust the attention thus bestowed will not be found to have been entirely thrown away, but that in some points it may be considered to merit the favour of your approbation.

Believe me,

Dear Sir,

Yours faithfully,

JOHN HOWSHIP.

George-Street, Hanover-Square,

Nov. 1. 1823.

CONTENTS.

	<i>Page</i>
<i>INTRODUCTION</i> - - - -	ix

CHAPTER I.

ON CONTRACTION, OR STRICTURE IN THE RECTUM.

SECT. 1.

<i>On the Causes of the Disease</i> - - -	1
---	---

SECT. 2.

<i>On the Symptoms and Appearances</i> - -	4
--	---

SECT. 3.

<i>On the Treatment</i> - - - -	15
---------------------------------	----

CHAPTER II.

ON ULCERATION OF THE INTERNAL SURFACE OF THE INTESTINE.

SECT. 1.

<i>On the Causes of the Disease</i> - - -	86
---	----

	<i>Page</i>
SECT. 2.	
<i>On the Symptoms and Appearances</i> - -	91
SECT. 3.	
<i>On the Treatment</i> - - -	104

CHAPTER III.

ON THE GROWTH OF TUMOURS WITHIN THE BOWEL.

SECT. 1.	
<i>On the Causes of the Disease</i> - - -	144
SECT. 2.	
<i>On the Symptoms and Appearances</i> - -	145
SECT. 3.	
<i>On the Treatment</i> - - -	148

CHAPTER IV.

ON THE PROLAPSUS ANI, OR THE DESCENT OF THE BOWEL.

SECT. 1.	
<i>On the Causes of the Disease</i> - - -	153
SECT. 2.	
<i>On the Symptoms and Appearances</i> - -	154
SECT. 3.	
<i>On the Treatment</i> - - -	161

CHAPTER V.

ON HÆMORRHOIDAL TUMOURS, OR PILES.

SECT. 1.

<i>On the Causes of the Disease</i>	-	-	-	207
-------------------------------------	---	---	---	-----

SECT. 2.

<i>On the Symptoms and Appearances</i>	-	-	-	ib.
--	---	---	---	-----

SECT. 3.

<i>On the Treatment</i>	-	-	-	213
-------------------------	---	---	---	-----

CHAPTER VI.

ON FISTULA IN ANO.

SECT. 1.

<i>On the Causes of the Disease</i>	-	-	-	247
-------------------------------------	---	---	---	-----

SECT. 2.

<i>On the Symptoms and Appearances</i>	-	-	-	248
--	---	---	---	-----

SECT. 3.

<i>On the Treatment</i>	-	-	-	251
-------------------------	---	---	---	-----

CHAPTER VII.

ON THE HÆMORRHOIDAL EXCRESCENCE.

SECT. 1.

<i>On the Causes of the Disease</i>	-	-	-	264
-------------------------------------	---	---	---	-----

SECT. 2.

<i>On the Symptoms and Appearances</i>	-	-	-	265
--	---	---	---	-----

	<i>Page</i>
SECT. 3.	
<i>On the Treatment</i> - - - -	267

CHAPTER VIII.

ON THE BEST MEANS FOR OBTAINING A REGULAR STATE AND ACTION OF THE BOWELS; AS ESSEN- TIALY CONDUCTIVE TO THE PREVENTION OF THE ABOVE DISEASES - - - -	269
--	-----

ERRATUM.

Page 220. line 19. *for* Col. F. *read* Col. J.

INTRODUCTION.

THE peculiar spirit of active research, that has distinguished many of the first characters of the present day, affords ample testimony that the real friends of scientific pursuits are no less zealous than they are numerous.

Not only is the detail of minute structure in human anatomy more clearly unfolded to us, by the combined labours of various individuals; but we also see the wide field of comparative anatomy entered upon with an avidity, and its devious paths sought out and explored with a degree of industry, talent, and success, heretofore unknown.

Those who consider the healing art with that attention its importance demands, must also admire the brilliancy of illustration which has of late been shed upon the elementary principles of the animal machine; their laws of combination, the chemical changes connected with the functions of vitality, and above all, those deep researches by which the progressive, yet mysterious, conversions that take place in the nutritious fluid have been unveiled, the newly-acquired properties of the chyle ascertained, together with the successive changes by which that fluid is eventually identified with the general volume of circulating blood.

Neither are the great acquisitions to medical science in the present day confined to anatomy and physiology. The unexampled assiduity displayed in the researches connected with chemical philosophy has thrown much essentially useful light upon the more secret operations of the animal economy, under the influence of disease; developing, with other matters of high importance, the precise composition of the various kinds of urinary concretions, and demonstrating the modes by which the calculous diathesis may in most cases be changed, or corrected.

Among those who, in the present age, have most eminently distinguished themselves by their labours in physiology, and comparative anatomy, may be ranked the late Mr. HUNTER, Sir EVERARD HOME, and Monsieur CUVIER; each of whom have established high claims to public regard upon almost innumerable occasions. In chemical science, Mr. HATCHETT, Sir HUMPHREY DAVY, and Professor BRANDE, have shone forth with permanent lustre; tracing out the previously hidden resources and operations of nature, and displaying with admirable skill, many of the silent and secret agencies appointed to superintend the movements of the animal machine, and regulate the performance of the living functions.

There are, in fact, a host of labourers in the vineyard; many of whom have conferred essential obligations upon society, no less by the animating influence of their example, than by the intrinsic value of their personal contributions.

The following observations relate to a very important, and highly interesting, branch of surgical practice. The principal reasons for bringing them forward have been, on the one hand, my having devoted much time to the study of these complaints, and on the other, having had considerable opportunities for seeing them; and perhaps I may also add, rather considerable success, either in relieving, or removing them.

The functions assigned to the alimentary canal are various and interesting. This canal may be represented as a very extended tube, in some parts larger, in others smaller, in a certain portion gifted with a power of digesting its contents, but through its whole extent capable of contraction.

This power of contraction is so important as to be, in fact, indispensable; the continual necessity for this power being proved by the nature of the changes resulting from digestion, requiring the selection of the useful, and rejection of the useless, parts of the food.

In one of the most correct, and at the same time most comprehensive, and valuable, medical works of the present day, the intestinal canal is defined to be “the convoluted tube that extends from the stomach to the anus; receives the injected food, retains it a certain time, mixes with it the bile and pancreatic juice; propels the chyle into the lacteals, and covers the fæces with mucus.”*

The contractile power of the intestines resides in what has been termed the muscular coat, which coat is lined internally by a mucous or villous

* Dr. HOOPER'S Medical Dictionary. 4th edit. Longman. 1820.

membrane, and externally by a fine and smooth membrane, which completes the structure of the tube; and as each of these expansions or coats is gifted with peculiar functions in health, so is each subject to peculiar complaints, when under the influence of disease.

In the natural state, the internal membrane of the bowels secrete a limpid fluid, which tends to regulate the due consistence of the mass of contents, and facilitate their transit; this membrane also fulfils a purpose of most essential importance in the economy, by absorbing or taking up the nutritive particles from the digested mass, which thence pass by the lacteal vessels, into the general volume of the circulating blood.

In disease, this membrane is subject to all the effects of irritation, and inflammation; particularly ulceration.

In the healthy state, the circular muscular fibres of the small intestines have the power of lessening the diameter of the bowel, and the longitudinal fibres that of diminishing the length of any part of the canal; but in health these actions are altogether transitive and progressive, no portion of the tube ever remaining contracted, or dilated, permanently. The structure of the great intestines, however, appears to imply that even in health their functions differ in at least some degree from those of the other parts of the canal. The distribution of the circular muscular fibres is through the whole extent of the alimentary tube even and uniform; but the longitudinal muscular fibres, evenly dispersed upon the small intestines, are upon the great intestines gathered into parcels, forming three longitudinal slips or bands, which in contracting

themselves appear to gather or pucker up the intervening spaces of the cavity of the bowel, into so many little recesses, or pouches, in which fœcal matters are occasionally lodged, and sometimes retained for a very considerable length of time.

Under the influence of disease or irritation, the comparatively even, gentle, and progressive contraction of the alimentary canal becomes subjected to painful and even permanent spasm, and should this connect itself with inflammation, the effusion of new matter may lay the foundation for some incurable disease.

The natural state of the external coat of the intestines, is that of a fine smooth transparent membrane, which like most of the other textures in the body, is ultimately cellular, highly elastic, and moistened by a secretion of limpid fluid. From inflammation and other causes this membrane also is liable to become thickened, and otherwise diseased.

The following observations relate to the discrimination and management of those diseases to which the inferior parts of the alimentary canal, more particularly, are subject; diseases which are all of them important, all more or less distressing, some of them extremely painful, and many of them, if misunderstood or neglected in their early course, eventually fatal.

Almost every deviation from health, either in the functions or structure of the bowels, may be regarded as connected with one of two states, for almost every case will manifest either excess, or deficiency, in tone, or power of action. The first state favouring the production of inflammation, contraction or stricture, ulceration, abscess, and

fistulæ; the second inducing hæmorrhoidal tumours, hæmorrhage, and prolapsus.

The extensive opportunities that have fallen within my reach since printing the former editions, have, I hope and trust, enabled me to make many important additions in the present impression; particularly as regards the peculiar sympathies, powers of bearing, and facilities of recovery, possessed by certain parts, under disease; as well as in what relates to the most simple and satisfactory modes of ascertaining and discriminating between complaint and disease; and also in determining the most adviseable modes of endeavouring either by internal medicines, or external means, to relieve or remove the various disorders of action, or organization, to which these parts are occasionally exposed.

Should it appear that in collecting and reducing the materials of the present essay, I have evinced any degree of industry, the admission opens no door to vanity, seeing that this is a power possessed by all, though not exercised by every one; a power, without the exertion of which, no person can fulfil the duties he certainly owes to society, and by the aid of which each individual may in some way or other contribute his mite, be it ever so small.

The practical cultivation of medical science, like that of the earth on which we move, requires, however, some ground upon which to work, without which even the little store the poor man may possess, may be ultimately lost, for want of the means for improvement; and even where space and means have become sufficiently ample, still the blessing that generally attends industry,

may not be sufficient to ensure its right application, so prone is the human mind to run into idle and wild excess, unless every effort be made under the direction of superior age, and greater experience. These reflections naturally lead to the source whence so many and so great advantages as I have enjoyed have been principally derived, inducing me to acknowledge my still increasing obligations to Mr. HEAVISIDE, whose example first inspired me with determination and perseverance, and the honor of whose steady patronage, and warm friendship, still continues to be my greatest comfort, and chief pride.

It will be observed, that I have been careful, particularly with regard to morbid structure, to distinguish what I have seen and examined with my own hand, from what has been given on the authority of others. This care seems necessary, having found that in circumstances relating even to the leading principles of Pathology, error has occasionally crept in; and mere fancy, through the medium of generally received opinion, has at length assumed all the importance of fact.

For some valuable additions, in illustration, I am indebted to the friendly attention of Mr. SPILSBURY, of Walsall, in Staffordshire; a gentleman whose zeal for the improvement of his profession is manifested by the readiness with which he kindly favoured me with the more recent fruits of his experience, upon these subjects. I have also taken the liberty to avail myself of such facts as appeared interesting in looking over the few works that I have had leisure to consult; but in so doing have been careful not to omit acknowledging my obligations.

With regard to some circumstances contained in the following pages, it may perhaps be objected that the writer has wandered from his subject, in adverting to complaints, the seat of which must evidently have been the superior parts of the alimentary canal. Upon this point the only apology he can offer is, that he was desirous of making these observations as really useful as possible, by rendering them practically so, and that he preferred the chance of censure for mentioning some particulars not precisely in order, to the omission of any circumstance at all connected with the subject, which being made known, might prove of serious importance at the bed-side.

With relation to a very desirable object, the obtaining a regular habit of action in the bowels, which is rather a preventive than a curative measure, the Author has much pleasure in continuing to recommend a principle of treatment, that as far as his information extends, appears to have been little, if at all, distinctly held in view, by others. All that he can say in its favour is, that he has adopted it in a great number of instances, and that by little variations in the mode of its application, it has proved, with very few exceptions, perfectly successful.

Upon some points it will be seen, he has not hesitated to express opinions, more or less at variance with those of surgeons of reputation and celebrity. If, however, this has been done with good manners, no apology can be necessary. It is by the collision of opinion that Truth is elicited; and it affords him infinite pleasure to hope, from its success, that the present essay may be considered in some small degree at least, conducive to its developement.

PRACTICAL

OBSERVATIONS, &c.

CHAPTER I.

ON CONTRACTION, OR STRICTURE, IN THE RECTUM.

SECTION I.

On the Causes of the Disease.

1. STRICTURE in the rectum may take place under various circumstances. Any accidental source of irritation in the bowels, any acrimonious secretion poured into the alimentary canal, or any extraneous substance detained in the lower part of the rectum, may, through the medium of inflammation, lay the foundation for this disease.

2. Where inflammation results from acrimonious matters in the bowels, its extent will usually be greater, and its consequences more serious, than when excited by the presence of an extraneous body.

I have, in one case, known a fish-bone lodged in the lower part of the rectum excite a very circumscribed spot of inflammation at the point most favourable for its escape near the verge of the anus; the ulcerated passage, upon the escape of the irritating cause, healing without any inconvenience to the future actions of the bowel.

I have, in many instances, while on service with the army, seen the most severe attacks of inflam-

mation brought on, not only in the rectum, but along the superior part of the great intestine also, from the sudden accession of cholera morbus. Mere neglect of the bowels appears, in many instances, to have been the exciting cause of inflammation in the rectum, from the continual presence of acrimonious and bilious contents; where this action becomes chronic it either produces continued misery*, or worse consequences.†

3. When from any of the above causes inflammation in the bowel takes place, the natural texture being soft and vascular, the cavity of the affected part of the canal is apt to become diminished, and the thickness of its sides increased; and should the excitement principally affect the mucous membrane, coagulable lymph may be effused into the cavity of the bowel; this latter circumstance becoming in its turn a new cause of disturbance to the functions of the gut. If the irritation connected with the attack should prove violent, the above consequences may terminate in ulceration of the inner membrane of the bowel.

4. It has been believed by some surgeons, that stricture in the rectum may occur as the consequence of the venereal disease; but this opinion seems to rest on no better foundation than that of its having occasionally been met with in those who either had the misfortune to labour under both these complaints at the same time, or who had at least suffered from venereal disease at some former period.

5. The repulsion of eruptive complaints has been mentioned as a cause of this complaint, particularly by M. DESAULT, who relates two instances of it: I have seen several of a similar description.

6. It is probable that a disposition to contraction in the rectum may in some instances connect itself with hæmorrhoidal or fistulous complaints, and

* Case 9.

† Case 12.

that the means adopted for the cure of the external disorder may appear to favour the subsequent advance of that which is internal, which had previously escaped without notice, or perhaps had not existed at all. My opinion upon this point is, that no operation for the cure either of hæmorrhoidal tumours, or fistulæ, ever did, or ever will, tend to the production of stricture or other disease of the gut, provided the operation is rightly performed, and that proper attention is afterward paid to the general health of the patient. The utter neglect of this latter circumstance I have very often seen bring on much inconvenience; and I know of a few instances in which it has cost the patient his life. We must not, however, discredit surgery unfairly, by imputing to it those events justly attributable to the neglect or ignorance of some few who practise it.

7. Stricture in the rectum sometimes occurs spontaneously, where it seems, notwithstanding, unfair to impute it to constitutional disease, as it comes forward alone, and yields readily to treatment, provided that treatment is properly directed, and taken up in time.

8. The most serious, and indeed the only truly formidable shape in which this disease appears, is that in which it is commonly connected with some similar affection elsewhere, exciting symptoms, and exhibiting characters, that belong only to scirrhus disease: from which circumstance this particular variety of the complaint has been termed the malignant, scirrhus, or cancerous stricture of the rectum.

An interesting case of fatal stricture in the rectum, originating in cancerous disease of the womb, is related by Mr. WILMOT, in the second volume of that excellent work, the Transactions of the Irish College of Physicians.

9. M. DESAULT states that stricture in the rectum occurs less frequently in men than women, and

this appears to be true, although I have not seen it in the proportion he has mentioned, of only one to ten.

10. Much inconvenience has sometimes arisen from a mere excess in the action of the sphincter muscle. M. DELPECH speaks of this circumstance as “un spasme fixe du muscle sphincter externe de l’anus, accompagné et peut-être produit par une ou plusieurs gerçures placées dans les rides rayonnantes de cette ouverture.”* One occasional consequence of spasm of this muscle will be mentioned presently (236.); and in a retention of urine which lately obliged me to puncture the bladder from the rectum, I found very considerable difficulty in passing my finger through the sphincter, preparatory to making the puncture. It appeared that this spasm partly arose from the extreme pain and irritation kept up by the over-distended state of the bladder; particularly as in a preceding case in which I performed the same operation upon a gentleman then under my care for stricture, the introduction of the finger brought on great aggravation of the spasmodic pains in the bladder, which repeatedly excited evident and distressing spasms in the sphincter.

SECT. II.

On the Symptoms and Appearances of the Disease.

11. MANY of the inconveniencies attendant upon stricture in the rectum are occasionally induced by an irritable state of the bowel, inducing spasm; and from what I have seen of these complaints, I am disposed to think an irritable state of bowel is productive of more pain and distress to the patient than many cases of permanent contraction.† Pure spasm, however, when the bowel is filled with warm water, almost always gives way, in the gentle

* *Precis.* tom. i. p. 598.

† Case 10.

and cautious examination with the silver ball probe ; while, if a bougie be used, the sphincter being kept in a state of uneasy distention, is apt to convey a sympathetic excitement to some remote irritable point within the bowel, and thus giving at best an indistinct impression, may sometimes mislead the judgment, by producing the disease it sought for, but which did not exist before.

12. Inflammation in the rectum, excited by the presence of acrimonious matters within its cavity, is attended with feverish symptoms common to other local inflammations. In these affections I have generally observed tenesmus to be one of the most troublesome and constant sources of inquietude ; particularly distressing, because the efforts to obtain relief are generally unavailing.*

13. A very usual, and sometimes strongly marked symptom, during inflammatory action in the lower part of the bowels, is a peculiar but decided sense of heat in the part affected.

Inflammation in the rectum may operate in some cases very formidably, by arresting the healthy functions of surrounding parts. In this way it may suspend the progress of labour †, and not uncommonly produce retention of urine, or even a suspension of the secretion.‡

14. Inflammation once produced, may vary in its progress and consequences. In strong and healthy constitutions, one of the most common ill effects is a degree of permanent thickening in the coats of the intestine, from serous fluid and coagulable lymph being poured out, either externally, internally, or into the cellular texture of the bowel. These events frequently end in the production of stricture, sometimes in the formation of adhesions within the cavity of the gut, and occasionally in a permanent excess of irritability in the part, which it is next to impossible to relieve.

* Cases 9. and 12.

† Case 7.

‡ Case 8.

15. I have repeatedly known stricture in the rectum arise from coagulable lymph effused from inflammation connected with abscess external to the gut. In one instance * the band of adhesive matter thus formed could be felt very distinctly in examining the bowel.

16. In the weak and irritable, though inflammation may end in effusion, the affection is more apt to run on to ulceration of the mucous membrane ; and unless the probable state of the disease is accurately estimated, and the turn of constitution diligently attended to, the consequences will generally be serious, and the event fatal. Under these circumstances it commonly happens that the patient at first harassed, is at last exhausted ; by the combined influence of excessive secretion of purulent matter, long continued uneasiness, great pain and incessant irritation.

17. Where a fragment of a bone, or other sharp extraneous body, has found its way into the rectum, unless favourably situated for escaping by the sphincter, it usually excites inflammation and ulceration, by the aid of which it sometimes makes its way out ; in other instances, however, this does not happen.

M. LE DRAN mentions the laying open a fistulous sinus of many months' duration. In performing the operation, the surgeon, introducing his finger into the bottom of the wound, detected a small piece of bone with sharp edges, lodged very near the neck of the bladder. This was extracted, and the wound healed in two months.†

18. In one case, the jaw of a whiting was found at the bottom of an abscess near the anus, in a complaint previously supposed to be piles. It had subsisted more than a twelvemonth ; but, on the removal of the cause, the abscess healed presently.‡

* Case 17.

† Observations de Chirurgie, Obs. 86.

‡ Phil. Trans. No. 453.

In another case, an ivory bodkin, accidentally swallowed by a female, made its way from the intestines partially into the bladder; from whence, not without considerable difficulty, it was extracted, nine weeks afterwards, by making an opening into the bladder above the pubis.*

19. Where an extraneous body is low down in the rectum, the patient is generally sensible of a sharp pricking pain in the part, previous to the formation of matter, aggravated during the passage of a motion. Should he apply for assistance at this period, there will commonly be no difficulty in preventing the inflammation, or abscess, that otherwise must take place, by the timely removal of the irritating substance (70.).

20. Where a small mass of hardened fæces in the rectum is situated low down, with another above it, the part of the bowel between the two may have a tendency to contract itself in the vacant space. Should the irritation incident to loaded bowels cause the parts thus circumstanced to inflame, effusion taking place between the coats of the intestine will inevitably convert its temporary form into a permanent condition. The subsequent escape of the fæces attended with violent pain, the contracted part will always be irritable, because much exposed to annoyance from the perpetual transit of the contained matter. In this way, I believe, a sort of transverse valve or membrane is sometimes formed, with a central opening, inducing most distressing consequences.† Should a large collected mass of fæces be followed by inflammation, the result is no less serious.‡

21. Inflammation, then, may be followed by permanent contraction, or stricture, in the rectum. The inflammation removed, the coagulable lymph, effused either between the coats, or into the cavity of the bowel, remains; and new-formed vessels

* Phil. Trans. No. 260. † Cases 13. and 14. ‡ Case 12.

shooting into its substance, enable it, slowly and imperfectly, to assume the characters of organised matter. The activity of circulation established in some of these newly-formed parts is such, that, instead of merely preserving their original form, they undergo a gradual increase or growth; and, provided the seat of the deposit be the cellular texture, the thickness of the sides of the bowel may increase, the aperture through the canal diminishing in the same proportion.

22. The attention of the patient is at length called to the state of the part affected. He suffers inconvenience or pain in passing a confined motion; he feels an irksome sense of weight, or bearing down; or, perhaps, is first struck by the appearance of a mucous discharge from the anus. As the complaint increases, occasional difficulty, or pain, at the water-closet, is succeeded by a progressive and generally an evident change in the form of every figured stool, which seldom fails, sooner or latter, to point out the nature of the disease. The contents of the bowels have, in their appearance, been compared to thin flattened cords, or earth-worms.

23. Stricture in the rectum induces, occasionally, transitory affections of the nervous system, of a peculiar character; these, although rare symptoms, should be known as occasional attendants, as they may lead the attention to the original disease. In one instance, without any distinct uneasiness in the seat of the stricture, occasional pain pervaded the lower limbs, with so complete a suspension of nervous power, that the patient in walking was liable to come down, "as suddenly as if hamstrung." The more curious circumstances attendant on this case have been lately detailed.*

24. By examining the bowel in the earliest or inflammatory stage, we ascertain the existence of

* Practical Treatise on the Diseases of the Urine and Urinary Organs. Longman and Co., 1823.

extreme irritability, or severe pain, in the seat of the affection; the intestine feeling soft and pulpy, and the inner membrane thrown into folds. *

25. When the complaint has continued some time, and the sides of the gut are much thickened, in connection, perhaps, with effusion of coagulable lymph into the cavity, such thickening is more readily ascertained under examination. The lymph poured out into the canal may vary as to quantity and disposition: and, while recent, the adherent mass, whether divided into bands, or attached to one part only, may be peeled off, and separated by the end of the finger; or, if more perfectly organised, there are still other means by which its quantity may be lessened, or the inconveniences resulting from its presence removed.

26. Occasionally there are only a few small membranous septa passing across the canal, or a rough membranous surface, the extent of which may be determined by passing the finger on to the more perfectly smooth and elastic texture of the mucous membrane. †

27. In some cases stricture in the rectum is attended with occasional sensations of sharp pain at the end of the penis, similar to that which attends certain complaints in the bladder ‡; in others, sympathetic irritation induces frequent returns of temporary retention of urine. §

28. A very frequent symptom, in complaints of this kind, whether situated in the rectum, or higher up, is a want of power to sleep well, without perhaps any sufficiently apparent cause. Generally without local pain the patient is restless, and can never lie long in one position; though sometimes the habit of lying awake most of the night is induced by a constant sense of uneasiness in some particular spot within the abdomen. ||

* Case 6.

† Case 17.

‡ Cases 20. and 27.

§ Case 25.

|| Case 31.

29. Mechanical obstruction to the passage of the contents of the lower bowels, attended with most of the symptoms of stricture in the rectum, may sometimes occur without any disease whatever in the gut itself; of which I have lately seen an instance end very well. *

30. When inflammation proceeds to ulcerate, the ulcerated surface will usually be very painful to the touch, and in some cases apt to bleed, unless, indeed, the cellular membrane has become sloughy. Should ulceration not have taken place, the thickening and consequent contraction in the coats of the canal will pass forward to the more advanced state of stricture, so as to prevent the introduction of the smallest bougie, and render the intestine at last impervious.

31. Where stricture in this part has been ascribed to the venereal disease, the complaint takes place in the manner above mentioned. The sides of the gut become thicker, and more firm than natural, lessening the diameter of the canal. It has been supposed that in this particular affection the mucous membrane of the bowel labours under an excitement similar to that which exists in the urethra in gonorrhœa; and to this circumstance the French writers have attributed the copious mucous discharges that occasionally attend the disease. I have, however, met with no fact in confirmation of this opinion.

32. Should the disease have arisen from translation or retrocession of cutaneous eruption, or should it be conceived to have originated in hæmorrhoidal or fistulous complaints, it will in either case observe the course, and exhibit the appearances, already described.

33. The latter stages of strictured rectum, where it has no malignant tendency, are extremely distressing. The aperture of the stricture diminish-

ing, the increased efforts required to expel the fæces become not only violent, but at length unavailing; while the urgent straining tends only to aggravate the irritation of the diseased parts, exposing the patient to a degree of misery and torment almost beyond description. Happily, however, even in these circumstances, the disease admits not only of being relieved but sometimes cured.

34. When the difficulties of the disease increase, it occasionally happens that abcess takes place in the vicinity; which abcess, extending to the cavity of the intestine above the stricture, and opening externally also, allows the escape of at least some part of the contents of the overloaded intestines; a circumstance I had lately the opportunity of witnessing in a poor person, who, under much distress from this complaint, could not be prevailed on to allow the proper means to be used for her relief, and consequently fell a sacrifice to the disease. In a few instances an abcess of this kind has been known to form an opening from the bowel into the bladder, greatly aggravating the patient's general distress and misery. *

35. Of the malignant, scirrhus, or cancerous stricture, the early course frequently passes by without notice: it sometimes proceeds very slowly. In one case, the first symptom was an occasional uneasiness, and frequent darting pain in passing a motion. In two other cases, one of which is annexed, the first symptom was an irritation at the neck of the bladder.† The more early symptoms are succeeded by those local inconveniences consequent to obstruction to the passage through the bowel.

36. The distinction between scirrhus stricture and contraction of any other kind, is always important, but not always easy; much assistance, however, may in general be derived from a

* Case 27.

† Case 29.

careful attention to all the circumstances of the history.

37. It has been observed, that the firmness or induration in the feel of the stricture, and the apparently considerable extent of the affection, conveying the idea of a large mass fixed in the pelvis, is a criterion of its nature. This was once my opinion; but I have lately traced the same character in diseases from which, by proper care, the patients have perfectly recovered.

38. The symptoms I think most clear, are either a peculiar sharp pain darting through the seat of the disease, or a more constant sense of glowing warmth or heat in the part. These symptoms, as far as I have seen, attend only the malignant or scirrhus stricture. There is also a peculiar sallow, or leaden cast of countenance, very characteristic in those who labour under cancerous disease. The means of relief also, as far as they relate to mechanical pressure, while they relieve other kinds of stricture, cannot be endured in this; they only tend to aggravate the symptoms, and hasten the progress of the disease.

39. The foregoing remarks relate to strictures so low down, as to be within the reach of operative surgery. Contraction of the bowels, however, may take place higher up, where no operation can avail. With regard to these cases, we have much to learn, as to the power of determining the seats and causes of disease, that we may be the better enabled to alleviate those complaints which may not admit of being entirely removed.

40. A case of stricture in the sigmoid flexure of the colon is recorded by Mr. HILL, which in its progress producing abscess in the rectum, and a fistulous opening into the membranous part of the urethra, terminated fatally after several years of distress and suffering; originating, as was supposed, in an injury received from a fall in hunting.*

* Edin. Med. Journal, vol. x.

In another case by Dr. HOLMES, a stricture in the middle of the transverse arch of the colon was latterly attended with uneasiness in the abdomen, and an irritable loose state of bowels.* For a very interesting case of this kind, the medical world are indebted to Dr. BURREL, in which stricture in the sigmoid flexure of the colon, terminating after a tedious and distressing illness in extensive ulceration through the coats of the bowel, ended fatally; which disease after death was found to have been produced by the poor man, who was a shoemaker, having accidentally swallowed five or six hogs' bristles, which in their passage had been stopped at that point, exciting disease not only there, but by irritation, throughout the whole extent of the intestinal canal.†

41. In considering the diseases of the colon, Dr. MONRO observes, fungous tumors sometimes pass across the cavity of the bowel; and he describes a disease of this kind in the colon, attended with great pain, flatulent distention, purging, and discharge of blood with the fæces. The patient died emaciated, and exhausted; and the passage through the bowel much interrupted, its cavity was materially enlarged. As, however, these complaints are described as having been of several years continuance, it appears to me the disease most probably originated in large masses of coagulable lymph effused during an attack of inflammation.‡

42. In one remarkable case, stricture in the colon followed from a blow §; and within the last twelve months, I have had the care of an accident, in which a similar consequence would most probably have followed from a kick upon the abdomen, producing violent spasmodic and inflammatory pains in the situation of the transverse arch of the

* Edin. Med. Journal, vol. viii.

† Ibid. vol. ix.

‡ Morbid Anatomy of the Gullet, &c.

§ Case 32.

colon, and a copious as well as continued effusion of blood into the cavity of the intestine, with fever. By adopting the plan laid down for the treatment of inflammation (50.), the consequences of the accident were progressively removed, the patient felt relieved from the pain, the local tenderness, and lastly the difficulty in maintaining an erect position ; and in a few weeks considered himself in every respect perfectly recovered, giving reason to believe that the early attention paid to the injury was the means of preventing those more serious consequences which delay might have incurred.

43. Authors have attempted to distinguish the kind of stricture, by the state of the inner membrane. M. DELPECH states, that in the venereal stricture, the inner membrane becomes tubercular ; most, but not all, instances in which I have found this membrane so changed, were clearly cases of scirrhus. M. DESAULT, more guarded, says that the inner membrane of the bowel occasionally acquires a surface more or less distinctly tubercular, whatever may be the nature of the stricture. The fact is, this tubercular state of the internal or mucous lining of the gut, arises generally, as far as I have examined the disease, either from the membrane becoming thickened, vascular, and pulpy from œdema ; or from the contraction of the space within which it is confined, throwing it into numberless short, convoluted folds, and presenting a surface which the finger cannot well distinguish from a collection of soft tubercles.

44. The scirrhus stricture exhibits on dissection great and extensive thickening and consolidation, as well as confusion, of parts. The disease, not confined to the coats of the intestine, is continued more or less extensively into the cellular membrane beneath the peritoneum reflected over the sacrum and bones of the pelvis. The firm, yet elastic, feel of this disease is peculiar, much resembling that of cartilage. On opening the cavity

of the bowel, the canal is found nearly or entirely closed, the section presenting so few traces of original structure as to render it difficult to say in what particular texture the disease originates. It appears to me to commence in the cellular membrane, connecting the coats of the intestine; an opinion not only rendered probable from the appearance of the parts, but from the evident facility with which the disease extends itself in the cellular tissue; it might also be argued from the tendency I have frequently remarked in scirrhus disease of the breast, to spread backwards, between the fibres of the pectoral muscle, which can only happen by its affecting the cellular texture.

45. Where scirrhus stricture has ulcerated, the irritability of the disease being considerable, the ulcerated process in some instances makes rapid progress; the stricture, in fact, ceases to exist, for the lower part of the intestine is ulcerated through at various points: in this way an opening of communication is occasionally formed between the rectum and bladder.

A most interesting example, illustrative of this stage of the disease, is preserved in the Morbid Anatomical Collection of Dr. HOOPER.

SECT. III.

On the Treatment.

46. THE treatment I have considered, and found to be, most effectual in removing excessive irritability and tendency to spasm in the lower bowels, consists first, in clearing out the intestines, quietly, but effectually; and second, in the exhibition of medicines that possess a tonic power, particularly the preparations of steel, taking care to obviate costiveness during their use.

47. Permanent stricture in the rectum may generally be prevented by an early and judicious attention to any inflammatory attack, to which

this, no less than the other parts of the alimentary canal, is occasionally subjected.

48. Where these complaints, after proper examination, appear to be the result principally of high irritability, much, very much, may frequently be done in permanent relief to the symptoms, by the adoption of the medical plan above suggested; sometimes with, occasionally without, the aid of instruments. These points, however, although of the highest possible importance, cannot in every case be determined by general rules, they must be left to the experience and discernment of the surgeon in attendance.

49. In the medical treatment of disorders connected with irritation or spasm in the bowels, every prescription should be so directed as to meet not only the local symptoms, but the remote sympathies that exist in that particular case, at that particular period. Where, for example, irritation in the rectum induces difficulty in voiding urine, should the properly-directed attention of the practitioner lead him to select medicines more than sufficiently active for the relief of the bowels, the difficulty in voiding urine, will most probably become a complete retention; while, on the other hand, medicines that are unsuitable from their too mild power, will effectually derange the feelings and functions of the stomach and upper bowels, and yet remain perfectly inert as to any action excited, or relief produced, in the lower parts of the alimentary canal.

50. Where inflammation is dependent upon acrimonious matters, plentiful dilution, by drinking copiously of light broths, or farinaceous decoctions, with repeated injections of warm water, will essentially tend to the relief and comfort of the patient, especially if assisted by the exhibition of gentle aperients, neutral salines, and other diaphoretic medicines; together with the warm bath, if required. (129.)

51. The necessity or propriety of blood-letting

will depend on the constitution of the patient, and the state of the pulse, as well as on the other symptoms. The pulse, although quick and hard, may not be sufficiently full to require, or to warrant, the abstraction of blood.

52. It is much to be lamented that in the treatment of internal diseases, their probable remote consequences are so little adverted to. The tendency of inflammation to produce effusion and contraction when it affects the urethra is now well known, but notwithstanding the other membranous and muscular canals are subject to the same law, it is not recognised; for when those events take place, which almost invariably pave the way to the future production of stricture in the rectum, they are most commonly taken up on a wrong ground, or if present symptoms are relieved, no further precaution or enquiry is suggested, for none is thought of; although the readiness with which inflammation deposits coagulable lymph, and produces stricture in other canals, has been repeatedly explained, and is particularly unfolded in the valuable work of Sir EVERARD HOME on Stricture in the Urethra.

53. Regarding the consequences of inflammation in the urethra, and in the rectum, as producing stricture, one material difference appears to be, the more frequent effusion of coagulable lymph into the cavity of the canal in the latter, than in the former case.

54. Where adventitious adhesions have taken place in the rectum, their division ought to be effected, if within reach, but always with the least possible violence. If recent, the finger alone will be sufficient for separating them, without injury to the surface of the bowel. Where, however, force or violence is necessary, the division had better be made with a probe-pointed bistoury, or with scissors; the instrument being cautiously introduced upon the finger, without being suffered to pass beyond the reach of that best of all directors.

55. In the treatment of diseases, it is as important to be aware of those accidents that may favour us, as to be prepared for those that may be against us: it is therefore necessary to bear in mind, that an inflamed or strictured part of the bowel, totally beyond the reach of the finger, may, through accidental circumstances, come at any moment completely within the power of examination; thus enabling the surgeon to satisfy himself most fully, as to figure, texture, and tendency.*

56. The occasional necessity for the aid of instruments, in dividing these adhesions, will be apparent, when it is recollected, that although coagulable lymph is easily separated or torn when it occurs as a recent deposit, its condition changes, it becomes organized, and the strength it may ultimately acquire is scarcely to be believed. In my practical observations in surgery, a case is related, in which the usual symptoms of hernia were produced by adhesions formed within the abdomen, strangling a part of the intestinal tube. It is difficult to conceive that any cord or band, the mere accidental result of effusion, should be capable of bringing about so serious a consequence. I was, however, lately requested to open the body of a young woman, in which examination I found the abdominal viscera in general much incommoded, and the omentum diseased, from inflammation, which had deposited various cords of coagulable lymph, connecting the bowels in various parts to each other, and to the pelvis. One of these cords, attached at one end to the anterior parietes of the abdomen, and at the other to the small intestines, and thence indirectly to the spine, was scarcely thicker than a crow-quill, yet so strong, that, raising it upon the fingers of both my hands, I found it strong enough to enable me to lift the body almost entirely from the table.

* Case 27.

57. The great importance of being vigilant and prompt, with a view to the prevention of inflammation in the bowels, is more serious than is generally supposed. I have recently witnessed an instance in which adhesions from preceding inflammation caused infinite distress, and, after six years' incessant suffering, terminated fatally.*

58. Considered practically, it is sometimes difficult to determine the precise extent, the seat, or even the actual presence of inflammation in the bowels. A degree of spasm will occasionally produce appearances and symptoms so closely resembling those of inflammatory action, that the distinction is almost impossible. The primary object, however, of these observations being to point out the means by which particular kinds of obstruction in the bowels may be effectually relieved, I think it right to mention my favourable opinion of a very powerful remedy, which I have known remove the most alarming degree of obstruction, where spasm presumably has been the cause. I have thrice had the opportunity of seeing its effects. They were cases in which the patients had suffered extreme pain in the region of the bowels, in which the prescriptions of physicians had availed nothing, and in which consequently Mr. HEAVISIDE's opinion and assistance had been requested; who, finding that the stomach had rejected every thing taken, and that stimulating clysters produced no favourable effect, in spite of bleeding, warm bath, and almost every other means, desired me to try the fume of tobacco, injected cautiously, by the proper apparatus, into the bowels. The usual effect of this application on the constitution is considerable lassitude and faintness, the pulse becoming much softer, and often irregular: it tends, of course, powerfully to relax any spasm in those parts to which it is most immediately applied; and it is curious that,

* Case 30.

while it removes any excess of contraction in the intestines, it manifestly excites a moderate diffused activity, producing a peculiar and remarkable disturbance, a general commotion and rumbling noise in the bowels, which, in each of the three cases to which I allude, was soon followed by copious evacuations of fæcal matter, and was evidently the efficient means of saving the life of the patient.

59. It may be objected that in the above cases the obstruction might not have been the consequence of spasm alone, but probably a degree of intus-susception in some part of the bowels. To this it is only necessary to reply, that the obstruction being complete, the removal of it became, not only requisite, but essential to life, and that by the means employed the passage was restored, the pain removed, the feverish symptoms relieved, and the patient's life preserved.

60. Where spasm has produced obstinate constipation, the affusion of cold water has, under judicious management, been powerfully conducive to the removal of the constriction.*

61. Spasmodic contraction in various parts of the intestinal tube have occasionally given rise to very singular complaints; sometimes of a flatulent nature. Mr. COLLINS relates that a young woman, aged 17, had a tympanitic tumour presumably in the colon, which commenced as a small circular swelling in the right side, after several days of violent pain. It increased for near a twelvemonth, and had then reached the size of a quart basin in the centre, extending, laterally, almost the size of the arm, on each side, nearly round to the back. Steel medicines and purgatives were given without removing it. The affection was never painful, but inconvenient from distention. It never extended below the navel.†

* Case 4.

† Edin. Med. Journal, vol. i.

In this case it is not easy to say how the bowel should or could have allowed the perpetual transit of the more solid contents of the canal without permitting the escape of the air also; provided it be admitted that the general cavity of the bowel was the seat of the collected flatus.

62. In some instances the retention of hard substances in the bowels has excited spasm, and led eventually to the most serious consequences. An instance is on record, in which, after several years of complaint in the bowels, a single plum-stone, was, after death, found to have quite buried itself, through the medium of ulceration in the villous coat, imbedding itself between the coats of the bowel, just where the colon joins the rectum. The part where this source of irritation lay was also found to be the seat of stricture, probably another effect of the irritation of the stone, which had produced a small abscess, discharging into the cavity of the pelvis, but not communicating with the canal of the intestine.*

63. The most extraordinary and curious instance, however, of this kind, that I have ever met with, was that of a female, who at six years of age, was first affected with a hard swelling and intense pain in the left side of the belly, which continued twelve hours, and subsided spontaneously. It returned, continued, and vanished, as at first, every three months, for several years; when the period of its return suddenly changed from three months to three weeks, and so continued till she was 35 years of age. At this time she married, and bore one child, the pain of child-birth being much less than that she had been accustomed to. Weak and exhausted by pain, watching, and the disappointment of finding that no medicine whatever relieved her, a woman gave her a strong dose of jalap, which operated very violently, removing the swell-

* Phil. Trans. vol. xxxix.

ing (then the size of two fists) from the side, and driving the pain suddenly down from the side to the anus, where tenesmus, and great forcing, with retention of urine, immediately came on.

Mr. YONGE, who relates the case, now called in, found a substance within the sphincter, which substance he extracted with the forceps, and permanently cured all her complaints. It was of an oblong figure, five inches in circumference, and although it weighed ten drachms, it swam on water. It was cut in two with a knife; externally it was black, as if coated with varnish; within this was a crust of matter like brick, as thick as half-a-crown; next to this appeared a substance resembling pasteboard or chewed paper; and within that a prune or withered plum, with the stone and kernel cut asunder by the knife.

“ Thus all these surprising symptoms, that so long afflicted this poor woman, were occasioned by this plum, swallowed so many years before; but how those different accretions were made to it in such a place as the intestines; — how it ceased to torment her at so many, and at such different intervals; — where it lurked between those fits, and how the pain and tumour observed such exact periods for so many years, at first every three months, and then every three weeks; — are questions I am not able to resolve.”*

64. In the same volume of the work just referred to, several other cases are mentioned, where, after repeated attacks of pain and spasm in the bowels, similar balls, each containing a plum-stone, have been passed per anum, the patient being either relieved or cured. Neither is it necessary that the substance should be hard, for a mass of strawberry-seeds retained in the bowels, is stated by Dr. SLOANE, to have in one instance produced as

* Phil. Trans. vol. xxiii.

strange, and almost as obstinate, a distemper as he ever met with.

65. Dr. THOMSON found, on analysing certain alvine concretions, that phosphate of lime constituted more than half the entire weight; being variously mingled with albuminous and other matters. Dr. MONRO mentions specimens of alvine concretions preserved in the Museum in Edinburgh, which, by their irritation had induced ulceration of the intestines. These cases were attended with occasional griping, or very acute pains. Relaxing the parietes of the abdomen by the patient's lying down, a very hard painful tumour may generally be felt, in the course of some part of the great intestine. Where excruciating pain indicates these substances having passed down into the rectum, their presence may be detected; and by dilating the sphincter, they may perhaps be extracted.

In one instance, the patient had laboured under acute pain in the belly seven years, and had passed three excrementitious looking concretions; after which a tumour was perceived between the ribs and hip, on the left side. In the course of some months it moved down towards the groin; and passing still lower all tumour vanished, and great pain came on in the fundament, though it could not yet be felt by the finger. The patient died exhausted by irritation; and on examination, a very large concretion was found in the sigmoide flexure of the colon, and extensive peritoneal inflammation. The dilated colon exceedingly vascular, and a quantity of pus effused among the bowels.

66. Even the more common fæcal matters, if permitted to remain in the bowels, will occasionally excite great derangement of health, without being even suspected as the cause. A woman is mentioned by PROFESSOR ODIER, who was subject to severe attacks of spasm, affecting in a very peculiar manner the circulating and respiratory organs, which were proved to have arisen from unheeded

confinement of bowels, and accumulation of fæces*; and I have myself repeatedly attended a lady in whom spasmodic attacks of pain, most agonising and frightful, seized upon the muscles of the loins and back, which, after continuing days and nights, (the bowels being stated to be perfectly regular,) have yielded to no medicines but cathartics, and to those only upon their producing from 20 to 30 copious, and foetid stools. In this case there were no pains whatever in the bowels, and occasionally none in the affected muscles during a state of rest; but any attempt to turn in bed excited such torment as it was impossible to bear in silence.

67. The length of time that indigestible matters will in particular cases remain, and the degree of distress and irritation occasionally excited by their presence in the bowels, is sometimes considerable. Thus I have seen symptoms, attended with much uneasiness to the patient, and more anxiety to myself, induced merely by the lodgement of a little spermaceti in the bowels, which could not be removed by castor oil, but was quietly and comfortably cleared out, with complete relief, by a compound aperient mixture.†

68. A case of fatal obstruction in the bowels is recorded in the Philosophical Transactions‡, in which the habitual difficulty in procuring stools was discovered, after death, to have originated in the lower end of the colon, folded back upon itself at a very acute angle, having formed a close adhesion for several inches along the line of contact. In another case a fatal ileus was produced in a boy, of which in three days he died, from an appendix, or hernious expansion of the bowel, three inches long, and as large as the bowel itself. Just below the insertion of this appendix, the intestine

* Edin. Med. Journal, vol. ii.
‡ No. 275.

† Cases 23. and 57.

was so closely contracted by spasm as scarcely to admit the passage of a probe.*

69. In considering the symptoms of inflammation in the rectum, it has been observed that the probable consequences will much depend on the habit of the patient, and that, notwithstanding the effects already noticed, will commonly occur in strong constitutions, the weak and irritable will be more liable to suffer from another consequence, that of ulceration within the bowel. The probability of this event must be estimated by the small and deficient, though quick or even rapid pulse; by the state of the tongue varying towards the appearance observed in low typhoid fever; and by other characters of weakness and irritation. Examination of the bowel conveys some information; there is little disposition to contraction, combined with great local irritability.

70. Of inflammation from local irritation, I have known two instances in which a fish-bone, escaping into the throat, has, through inflammation, produced stricture in the œsophagus, creating much inconvenience to the patient: although in one of these I know it did not shorten life, as the patient lived many years afterwards, and then died from some other cause. In one case, I have found a small bone passed through the intestines give rise to very unpleasant consequences in the rectum, producing an abscess, which, although it eventually allowed the escape of the irritating substance, left an unhealthy state of the parts, that required time and attention to remove.

71. A gentleman applied to me with uneasiness and pain in the rectum, which he could not explain: suspecting some local irritation, I examined, and found the sharp edge of rather a large fragment of bone pressing against the sides of the bowel. He was requested to return home, and remain quiet

* Phil. Trans. vol. xliii.

in bed, where, with the assistance of some spongent, I succeeded in relaxing the sphincter sufficiently to introduce two of my fingers. By this means the extraneous body, which had already excited much irritation, was safely removed, and further mischief prevented.

72. The treatment of stricture in the rectum cannot be taken up too early. The contracted part, provided the mischief has not proceeded far, may admit the finger to pass freely through, without giving any distinct impression of coagulable lymph within the cavity, or of ulceration of the mucous membrane. In this state, the common wax bougie, or perhaps, in preference, one of elastic gum of moderate size, may be introduced through the stricture, and allowed to remain or not, according to circumstances. If the parts are irritable, they must be quieted and humoured; if otherwise, they may be treated with less reserve.

73. The frequency of passing an instrument must be regulated by the state of the parts; the operation may usually be repeated at least every few days. It will require some knowledge of these disorders to determine whether the complaint is in a state that is favourable for the use of the bougie. Where the least tendency to inflammatory action exists, I have known the symptoms much aggravated by a single application of this kind; whereas, had due attention and discernment been shown regarding the previous state of the parts, they might, by the direction of proper medicines, have been easily brought into a state more favourable for operating, saving the surgeon much loss of time, and the patient much unnecessary pain. The want of attention to this principle in treatment is, I am convinced, frequently productive of great misery. A patient I lately had, complained when he gave me the history of his disorder, that one of the surgeons who had previously attended him had put him to extreme torture in using the

bougie, a circumstance that must have favoured the formation of a large abscess found after death, which, from the symptoms, appeared to have existed long before he first applied to me.*

74. Where contraction from inflammation becomes established, or rather makes a slow and steady progress, the necessary treatment may prove tedious, but the event, under proper management, is almost sure of being favourable. The introduction of the bougie may be required every day, or it may be necessary to increase its diameter more quickly than common, in order to gain upon the disease: or it may be expedient, with a view to excite absorption of the newly-deposited matter, that the operation be so conducted as to produce, and keep up, a certain degree of pain, or at least uneasiness, during the continuance of the pressure.

75. A stricture in the rectum, for some length of time impervious to any instrument, may subsequently become relaxed, and admit progressively bougies of considerable diameter with great advantage; shewing the propriety of occasionally repeating examinations of this kind, and proving the necessity for perseverance in our endeavours to afford relief.†

76. All these circumstances must be regulated by the discretion and judgment of the practitioner; one point being so balanced against another as may afford the best prospect of ultimate success, by promoting absorption, and favouring relaxation. That absorption may reasonably be expected to take place, by adoption of the plan proposed, is sufficiently proved by the frequency with which we see it excited by the agency of pressure, under other circumstances. At all events, it is most true that I have in many cases found the thickening diminish, the induration decrease, the aperture of the stricture enlarge, and the patient made most

* Case 27.

† Case 23.

happy, without any other assistance than that which the judicious application of the bougie has afforded.

77. Stricture in the rectum, when supposed to be connected with venereal complaints, has exhibited no distinct or peculiar symptoms; and those who have advocated such connection have admitted that the only mode of determining the point is by placing the patient under the influence of mercury, which, say they, if the complaint is venereal, will effect a cure.

78. Should the disease advance, the aperture through the stricture becomes progressively lessened, till at length the mechanical obstruction, at first occasional, is now constant, with aggravated suffering, and increased distress. The frequency of desire to pass a motion, the difficulty in effecting its passage, and the degree of pain brought on by the attempt, become almost insupportable. The treatment, however, is to be still conducted upon the principles already laid down.

79. In dilating strictures of this kind, M. DESAULT was in the habit of introducing a slip of lint, passed upon a probe through the strictured part, and allowed to remain there some time. In the course of the treatment, the quantity of lint thus introduced was increased, so as to answer the same purpose as a series of bougies; and the plan consequently proved as successful as that of introducing the bougie. I have repeatedly tried both modes, but certainly prefer the bougie; this instrument presents a more perfectly smooth surface, gives much less pain in the introduction, and, as far as my experience goes, has answered the purpose better than the other method.

80. The disease now under consideration, it might naturally be concluded, could not, in any instance, pass through all its stages without exciting attention; but the degree of indifference manifested in some instances regarding health is

scarcely credible. I was, some months back, shown a disease just removed by a medical friend from the body of a lady, fifty years of age, who died in the country. She had never applied for any opinion upon her case till a week previous to her decease, when, complaining of confined bowels, she requested her apothecary to send her some medicine. Large doses of the sub-muriate of mercury, and other powerful purgatives, were given without effect; injections were administered, but could not be made to pass. Violent pains soon came on in the bowels, and continued till she died. On opening the body, part of the small, and the whole of the large, intestines were found loaded with fluid and fæcal matter, and very much inflamed. The cause of the obstruction was discovered low down in the pelvis, near the termination of the rectum, where the gut had become so nearly impervious from stricture, as to prevent the introduction of any but the smallest sized probe.

81. Abscess in the vicinity of the stricture usually allows the escape of a part of the contents of the bowels. When, however, the stricture is relieved, and the natural passage partly restored, the fistulous channel generally assumes a healthy disposition, and soon closes up, similar to what happens in fistula in perinæo, from stricture in the urethra. Where, on the other hand, the removal of the obstruction in the bowel is not followed by the healing up of the fistulous passage, the partial or complete division of it will be all that is required for perfecting the cure.

82. In scirrhus stricture, it has been already observed, that pressure does harm; and, as the application of the bougie is therefore out of question, we are obliged to rest upon those palliative measures which consist in the direction of proper medicines; these, under judicious regulation, will often afford relief and comfort, although they may

leave us in uncertainty as to the event of the disease.

83. M. DELPECH says, that where the advanced state of the disease precludes the passage of the *fæces*, it has been proposed to divide the strictured gut, to secure the escape of the contents of the bowels, the confinement of which must, of course, produce extreme distress and danger. He adds, that the carrying up a cutting instrument into the midst of a cancerous disease must be expected to produce ulceration, and in this way, hasten the destruction of the patient; but that in cases of this kind, every thing that can be proposed is subject to objection. His words are: “*On a proposé de faire alors la section de l’un de ces points intermédiaires, afin d’assurer le passage des matières. Ce parti a de grand inconvéniens sans doute. Porter l’instrument tranchant au milieu ou tout près d’une affection cancéreuse, c’est hâter l’ulcération, qui doit consommer la ruine du malade; mais dans des cas de cette nature, on ne peut rien entreprendre que de très défectueux.*” * Upon this point I must take the liberty to observe, it appears to me that operative surgery should rarely, if ever, be recommended, unless where the chances are decidedly in favour of its success; and if this opinion is right, it must unquestionably be wrong to advise an operation in a disease of inevitably fatal event. It can only tend to discredit that branch of surgical practice, which, from the positive good that under proper direction it is capable of conferring, lays the fairest claim to the regard and confidence of mankind.

84. From its known power of allaying irritation, opium, in the latter stages of scirrhus stricture, becomes our chief dependance, and the principal means of relief, assisted occasionally by other medicines of the same class. The distressing sens-

* *Précis Elementaire*, tom. iii. p. 559.

ations experienced in the parts may sometimes be alleviated by the introduction of suppositories of the extract of opium, of conium, or of hyoscyamus, singly or combined, according to circumstances. One advantage attributed to suppositories is, that the application made in a solid form dissolves slowly, and thus operates more in the manner of a permanent remedy. In one patient, however, whom I some time since attended, a suppository of opium, directed to be introduced with this view, gave much additional uneasiness, and that repeatedly; but the same quantity of opium, dissolved in a warm injection, had an excellent effect, and was always productive of much relief, and very great, though temporary, comfort.

85. The treatment of contraction from spasm of the sphincter must be regulated by circumstances. In the cases mentioned by M. DELPECH, the attempts made to dilate the parts increased the distress, and did harm. But the description given certainly implies the existence of some venereal taint in the habit, to correct which, as it appears to me, should have been the first step. That gentleman, however, advises that the stricture be removed, by carrying a free incision through the fibres of the muscle, taking care so to heal the wound as to prevent the re-union of the divided parts. This operation, I confess, I have never seen performed, and, as a matter of opinion, should think very rarely necessary.

CASE 1.

Unusually severe consequences from confined Bowels.

March 21. 1822. A young woman applied to me with a constant and excessive pain in the loins and back, shooting thence down the thighs, frequently attended with the most violent cramps in the muscles of the thighs or legs; irksome weight and bearing down, with leucorrhœa, and pain, and

sometimes frequency, in passing water. The abdomen very large, and so tense that she breathed with difficulty. She was so weak, though looking well, that to walk ten minutes was an almost insupportable task. In fact, the flesh of the thigh, whether walking or not, was "frequently gathered up in hard and extremely painful lumps, the size of an egg," which, however, by perpetual rubbing, gradually dispersed. With these complaints she said she was dreadfully depressed, nervous, and languid. Bowels always costive, for a week together, unless she took medicine. Urine sometimes clear; generally thick, depositing a white sediment. She was directed an aperient mixture night and morning.

March 28. The medicine had operated once daily, and most of her complaints more or less relieved, but none removed.

March 30. The bowels one day confined, the inflation of abdomen, distress and pain in back and loins, and cramps in the lower limbs, had all returned just as they had been for many months before. Her medicine was therefore rendered more active.

April 27. By steady perseverance in using the aperient medicine, latterly combined with tonics, she now found her health very nearly restored. She could either stand, walk, or lie down when she pleased, and with comfort. She felt nothing of the aching pains, numbness, or cramps, in the lower limbs. The distress from the cramps, which had often obliged her to stop in the street from intolerable pain, no longer existed. She still felt some tendency to fulness about the abdomen towards evening, but nothing of the "dreadful" distention she was used to experience. Instead of her former terrible depression, she now described herself as feeling light, cheerful, and in excellent good spirits, having lost all her complaints. She

was therefore desired to continue her medicine for a fortnight longer, and then lay them aside.

CASE 2.

Supposed Disease of Rectum, from a Tumor pressing upon the Bowel.

THE following case is noticed, because its characters might have readily been mistaken for those of obstruction or stricture in the rectum, although the bowel was undiseased.

March 26. 1822. I was requested by Dr. JAMES to see a female, aged 38, many months distressed with occasional irritation in the lower part of the bowels; of late she had felt great uneasiness in voiding her motions, for the contents of the bowels passing down, she felt "pressed against some hard substance," near the anus, impeding free passage, and inducing an irksome sense of weight and bearing down. There was not the least affection of bladder, or hæmorrhoidal fulness, and she had no idea it could be any complaint in the womb, the catamenia being regular.

On examination, the sphincter ani was irritable, and gave the sharp darting pains to which of late she had been subject. Just above the sphincter I perceived the lower part of a tumor, feeling as if a small apple had been so placed as to press the sides of the bowel together, almost close against the sacrum. The surface was even, and the substance compact and firm. Moderate pressure excited the peculiar dull weight, but no pain. Examining per vaginam, the os uteri felt natural, but on its margin towards the rectum the indurated base of the tumor was felt springing apparently from the substance of the womb. Sitting upon a chair was uneasy, from this position pressing the soft parts upwards against the tumor, and exciting an aching or shooting pain, with similar feelings about the loins. An opening draught was directed to be taken at night.

April 13. The opening medicine exciting irritation, an anodyne was directed instead of it. She thought that of late the swelling had moved higher up, but declined examination.

August 27. With some trouble discovered where this person lived, as she had moved out of the neighbourhood. She said she was much better in every respect. Sitting any length of time was now productive of no inconvenience; a confined stool excited some degree of aching in the part, similar to that which she still occasionally felt at other times, but nothing to what it was. With difficulty allowed to examine the rectum, I could no longer feel any tumor or distinct convexity backward, as far as the finger could reach. She thought herself nearly quite well.

March 7. 1823. She called, to say she was at length completely well from her complaints, feeling now no inconvenience either from action of the bowels, exercise of body, position, or any other circumstance.

CASE 3.

Obstruction of the Bowels, with suspected Stricture.

A GENTLEMAN, between forty and fifty, much addicted to the pleasures of the palate, has had several serious attacks within the last few years, of loaded and obstructed bowels. These complaints have been ushered in by restlessness, nausea, epigastric fulness, tension and soreness in the lower part of the abdomen, and acute pain on pressure. In the attacks, the tongue was pale white, with a brown granulated fur on the basis; the pulse accelerated, with total loss of appetite, and a slight bilious tinge in the conjunctive membrane of the eyes. He complained that his stools were in general ejected with violence, preceded by wind. The first application of purgatives produced a pitchy feculence, scalding and irritating, and, by degrees,

the bowels, naturally very torpid, yielded a slimy evacuation of highly concentrated green bilious matter. Occasionally these latter are interrupted by the pitchy secretion, with increase of the symptoms. The nights are sleepless with pain in the back, and irritable sensations in the limbs. The evacuations indicate no deficiency of bilious secretion, but an excess of a highly odorous pitchy feculence, alternating with slimy yellow flocculent matter. Steady and sedulous perseverance in laxatives, opiates, alkaline infusions, with clysters, gradually bring the patient from a state of danger to one of comparative ease and recovery. By means of a small rush-light candle, no bougie being at hand, Mr. SPILSBURY examined the state of the rectum. About six inches from the sphincter he met with an obstruction. Gentle pressure seemed to admit the end suddenly through a diminished aperture, with pain and faintness, the patient saying that he felt an increase of the pain in his back.

Subsequent to this period he was disinclined to have the bougie passed, so that although Mr. S. had little doubt of stricture being present, we could not, without more clear evidence, decide positively upon its existence.

The figured stools were small, about the size of a child's motion.

CASE 4.

Obstinate Constipation of Bowels.

B. T., aged thirty, had symptoms of an inflammatory affection of the bowels from *June 3.* to *July 21.* 1819. He had much fever, tenderness on pressure, and irritation at stomach, with hepatic excitement; which yielded to bleeding general and local, purgatives, blisters, and anodynes.

He passed through *July* and *August* with restless nights, without appetite, and almost without

strength; when he was advised change of air. By this assistance he became well, and returned to his occupation of a bit-maker, in better health than he had enjoyed some time.

May 7. 1820. Mr. SPILSBURY was called to him, he was labouring under great tension of the abdomen, vomiting, anxious restlessness, and excessive pain referred to the lower bowels and back; and although he had taken castor-oil repeatedly for several days, he could scarce procure any evacuation. He was bled to the amount of twenty ounces, with relief to the rapidity of the pulse, the vomiting, and pain. An injection was next administered of turpentine and castor-oil, in a full quart of gruel. Draughts, with castor-oil and tincture of rhubarb, were also given every two hours.

8. No evacuation; tensive bowels. The injection had partly stayed, and was now repeated. Twenty leeches were applied to the belly. A scruple of calomel, with a purging mixture, given every hour, and a blister laid upon the abdomen. Only the injection returned, no fæcal matter.

9. Nine more leeches were applied to the circumscribed tumid part of the colon, near the sigmoid flexure, but still no evacuation. Mr. S. now wished to try the tobacco glyster; but as no apparatus for the fume was at hand, a scruple was given infused for ten minutes. It produced death-like prostration of strength, but no stool; it was repeated with as little effect; and also a third time, but still no evacuation.

11. Seven in the morning, still without evacuation. The patient was taken out of bed, supported, and a couple of gallons of cold water dashed violently over the abdominal region. He was rubbed dry, a tobacco glyster administered, and then put to bed. Directions were left, that if no evacuation occurred before noon, another glyster from an infusion of a drachm and a half of tobacco,

should be given. This was done. Half-past 10 at night Mr. S. visited him, and had the pleasure to find him in comfort and safety. His bowels had given way about six in the evening, and he had had three or four copious evacuations. Sound sleep followed; and by the twentieth of the month he was perfectly convalescent.

The pain and restlessness were much relieved by the depletion, but the anxiety and want of sleep were by no means allayed. As far as the patient's own feelings might be trusted, he considered the cold water as having produced the change in the state of his bowels, for they had made more disturbance on that day; probably the fortunate result may be attributed to the conjoint effect of the treatment.

CASE 5.

Inflammation of the Rectum.

A STOUT young woman, aged twenty-two, complained of heat and pain about the rectum and anus, *April 3*. She said, that an anxiety to keep her place had induced her to conceal her ill health as long as she could. Her bowels were confined, her pulse quickened, and her skin hot; she complained of constant burning heat internally, extending from the fundament several inches along the bowel; connected with which, there was heat and tumor in the perineum. She was ordered some opening medicine, but neglected taking it; and on the following day was ordered fomentations, being much worse.

April 5. I was requested to see her. She complained principally of the great heat and constant sense of burning, extending several inches along the intestine, connected with so much external swelling and inflammation below the right labium, as to preclude more particular examination. With

a very white tongue, and a hot and dry skin, she had much thirst, and a pulse at 120.

The fomentations were continued, and four large leeches applied to the perineum; but the pain not being at all relieved, eight ounces of blood were extracted by cupping as near the part as possible. By these means, the internal sense of heat and pain in the rectum immediately gave way, and in a few hours was quite gone; the external heat, pain, and swelling, remained, for which fomentations, rest, and low diet, were directed.

On the following day (the 6th) she took castor-oil, which brought away several highly offensive stools, to her great relief; the fomentations were continued.

April 7. In the course of this afternoon, the abscess in the perineum broke, the discharge from which was intolerably foetid. She found immediate relief, and by the next day was quite easy, but very weak. As the fever now left her, she took bark, and within a fortnight the abscess was healed, and she was perfectly recovered.

CASE 6.

Inflammation of the Rectum.

Jan. 12. 1819. I was consulted by a gentleman of delicate habit, for a complaint in the rectum. He said that about five weeks before, he had contracted a very slight gonorrhœa; that being confined in his bowels, he a few days afterward felt pain in passing his motions, which complaint had now become very distressing. The pains were occasional and acute, either confined to the bowel, near the anus, or shooting thence upwards to the loins. There was a constant, though variable sense of heat in the part; the passing a motion was extremely painful, especially just afterward, exciting tenesmus, and irritation at the neck of the bladder. The examination of the rectum gave

excessive pain, exciting the most violent nervous agitation; the feel of the bowel was that of an irritable and thickened, but, at the same time, a spongy and relaxed part; the temperature was evidently raised above the natural standard; there was nothing amiss with the prostate, but gentle pressure towards the sacrum instantly brought on the peculiar pain in the loins of which he had complained, as if the state of the bowel had connected itself with some affection of the sacral nerves: the tongue was white; the pulse at 90, small, but hard. There was a trifling appearance of discharge from the urethra, but an elastic gum bougie passed with freedom, and without pain. He was directed to keep quiet, live low, and take gentle aperients to procure three or four motions daily. From this plan he experienced some relief.

Jan. 15. He had been very poorly, with constant irritation and distress about the loins and rectum. He was ordered some castor-oil, which, with other medicines, procured several copious stools, and so much relief, that by the next morning he was easy and comfortable.

Jan. 17. He was not quite so well, the tongue still covered with a thick white crust; the pulse still at 90; the skin hot, and thirst considerable. The apparent state of the bowel, on examination, much the same: pressure externally, above the pubes, gave no uneasiness. I now directed the saline draught, with tincture of opium, to be taken every four hours.

Jan. 19. By the assistance of aperients, copious faecal evacuations were obtained, and the symptoms much relieved. The tongue became cleaner, and the pulse soft, and reduced to 80. The medicines were continued.

Jan. 23. His complaint had quite left him, but he was very weak. It was, however, considered prudent to allow him to recover his strength slowly;

the aperient medicines, therefore, were continued, but he was directed to take light nourishment more freely than before. Under this plan he soon entirely recovered.

Feb. 12. On examination, the bowel was ascertained to be in every respect restored to its natural state.

CASE 7.

Inflammation of the Rectum ; retarding Labour.

Mr. SPILSBURY was sent for to attend a Mrs. S. aged forty, with her first child. He found her in excessive irritation, referring all her pain to a constant sense of violent bearing down, and uneasiness in the rectum. She had been in labour three days, and about ten days before, coming home at night, she fell in the dark, and hurt herself. For a week after the accident she had scarcely any stool, but the continual and dreadful pain in and above the fundament, was the cause of all her sufferings. On examining the os uteri, the labour was found to be natural, and coming forward. On passing the finger into the rectum, though the bulk of the head pressed there, yet the finger could get beyond, and the gut did not seem to be unusually compressed, certainly not sufficiently to account for the great uneasiness in the bowel, which superseded the regular pains of uterine action. With head-ache, wandering pains, accelerated vibrating pulse, and a brown parched tongue, she was directed some opening medicine without effect; an aperient injection also was administered without operating to her relief. The patient seeming to be in great danger, fourteen ounces of blood were immediately taken away; in half an hour the uneasiness in the rectum grew more tolerable, the pain in the head was relieved, the wandering pains ceased, and the uterus exerted its full power, the pains becoming regular, with intervals of ease.

In about three hours, she felt great comparative relief and comfort ; and sat up cheerfully.

In the morning the pains had been regular, the labour advancing, but still complaints of the rectum ; though not near so intolerable as before. At about two o'clock she was delivered of a dead child. By brisk cathartics, and occasionally an anodyne, she recovered speedily.

The whole of this case may be considered as having been untoward and protracted, by the medical gentleman, previously attending, not being aware of the inflammatory state, rendering the case complicated.

CASE 8.

Inflammation of Rectum ; with Retention of Urine.

Mr. SPILSBURY was called to visit a young man with constipated bowels, and retention of urine. He could neither pass his water, or had he the power of going to stool, although the inclination to both was urgent, and very painful.

His pulse was full and hard, and as he had not been in this state a great number of hours, Mr. S. bled him until syncope came on ; very shortly after which he felt greatly relieved from the painful state of rectum, and also in the bladder. Both the bladder and intestines were soon after emptied of their contents upon the operation of a brisk purgative, which completed his comfort, and recovery.

CASE 9.

Chronic Inflammation of Rectum ; mistaken for Piles.

A lady, lately confined, had just gotten down stairs, but was still annoyed with a severe pain in the rectum. She had suffered frequently on going to stool, during the greater part of her pregnancy, but now expressed such dread of going to the

water-closet, that her life was quite burthensome. She had complained to her medical attendant, who assured her it was piles, which a little castor-oil would remove. Her sufferings, however, continued, and she was brought in fainting from the water-closet, when Mr. SPILSBURY's attendance was requested. He learned that her stools were scanty, but that she always experienced the greatest excess of pain in passing her motions. Her general health pretty good, she was not much inconvenienced when free from severe pain. On examining the rectum, he found it filled with hard lumps; of which as many as possible were extricated by the finger. Clysters were then employed, with active laxatives. The rectum and colon were successively emptied; in a very few days she was perfectly free from any complaint, and has remained so ever since, now many months.

CASE 10.

Spasmodic Strictures in the Rectum.

Dec. 3. 1822. A gentleman of relaxed habit, aged 30, consulted me for complaints principally in the bowels. His habit, he said, was always confined; greatly prone to flatulent tension; with restless nights, and uneasy sensations in the back and loins. In examining the rectum, previously filled with warm water, a large-sized silver ball discovered, at about 7, 8, and 9 inches, a spasmodic and acutely painful obstruction, in passing forward to 12 inches, where gentle pressure brought on violent griping pains, like those to which he had been accustomed. Letting the instrument lie quiet a few minutes, and then very gently withdrawing it, not the least remaining obstruction was perceived, nor the least pain or uneasiness excited, till the ball reached the sphincter; neither on passing forward the instrument to its former extent, was the least tendency

to spasm again detected. I directed him a tonic and aperient mixture, with the sulphuric acid.

Dec. 11. There had lately been no return whatever of a peculiar catching or throbbing spasm, occasionally running along the course of the rectum from the sphincter, and but little of the griping pinching pains in the bowels, to which he had before been very subject. In addition to his former medicines, he was directed to take of the muriated tincture of iron gtt. x. in a little water, twice a-day.

March 6. The medicines continued, with little variation, the painful complaints to which he had long been subject in the bowels were almost entirely removed. A distressing throbbing sensation however, in the head being still unrelieved, he proposed paying a visit to the seaside for a few weeks; upon which occasion he left town.

CASE 11.

Stricture, partly Spasmodic, in the Rectum.

Feb. 7. 1822. I was consulted by a middle-aged gentleman, of spare habit, many years subject to costiveness, and the inconveniences incident to loaded bowels. He had occasionally also been troubled with piles, and some degree of irritation about the bladder. The pulse was weak, and the appetite indifferent. Many years since a little bit of fat meat taken into the stomach brought on a severe attack of colic, with excessive pain; and from that time to the present day, he said, he had been obliged carefully to avoid fat, for if he only took a square inch, he was ill, and sure to be so. The skin was disposed to laxity and perspiration. I directed infusion of quassia ʒvj., infusion of senna ʒij., powdered rhubarb gr. vj., in a draught to be taken at bed-time.

Feb. 9. On any confinement of bowels he felt pain and distress extending down the left thigh

and leg. I examined the rectum, previously filled with warm water, and with a silver ball seven-eighths of an inch diameter, passed on to four and a half inches only. The middle sized ball went no further; and the smallest sized ball, one-fourth of an inch diameter, went on to five inches, became wedged in the stricture, and excited acute pain. A draught similar in principle to the former was directed to be taken every night.

Feb. 14. As much as ten years back, he had consulted a surgeon, who introduced a bougie, which gave very great pain, but would not pass beyond five inches. The extreme distress he had then suffered, determined him to see another surgeon, who, he said, abused him for passing a bougie at all. He gave him a pill, but no satisfactory opinion as to stricture, beyond the reach of the finger. Two or three years back he had taken the opinion of another surgeon, who, although he did pass a bougie, and find it stop at the old spot, said he was not able to determine whether there was stricture or not; but ordered him daily to inject cold water.

Feb. 23. Finding the former medicines operated rather too freely, although without the least degree of pain or uneasiness, he was directed compound infusion of gentian $\mathfrak{z}\text{v}$., mint water $\mathfrak{z}\text{ij}$., powdered rhubarb gr. iv ., in a draught, to be taken every night.

March 2. Injecting some warm water, I examined the state of the bowel, passing a silver ball six-eighths of an inch diameter; and was agreeably surprised to find that by inclining the direction of the instrument forward, and a little to the left side, after being checked for a few seconds at the old spot, with a peculiar sense of momentary distress, it now passed forward to seven inches, where at his request I stayed; but in a minute or two, without his at all feeling even the motion of the ball, I passed it very gently and freely forward to eight

inches, without feeling the least obstruction, or perceiving the least irritability. I had it therefore in my power to state, that his medicines appeared to have been very materially useful, as the contracted part of the bowel was essentially better, and more relaxed; he was requested to continue his medical plan.

March 9. Much improved in his general health, especially in his local feelings, and most particularly in the happiness derived from those feelings, he took leave of me upon his return into the country, where I enjoined his still continuing, for some time, to take his medicines.

CASE 12.

Diseased Rectum, from Inflammation.

Dec. 30. 1820. I was desired by Mr. HARDY, surgeon, of Walworth, to visit a middle-aged man, who, for years, had been subject to bilious attacks in the bowels, at first occasional, but latterly so frequent that he at length totally neglected them; and, during the months of *September* and *October* last, was distressed by a complaint for which he did not even seek relief. He had experienced a constant desire, night and day, to be on the night-chair, and had no sooner left it than the desire returned, with scarcely the power to pass any thing, except a little thin slime, or sometimes a bit of hardened fæces, with a continual and distressing sense of heat and uneasiness in the rectum, feverish restlessness and thirst.

In *November* he requested to see Mr. HARDY, who directed various opiates and anodynes, to soothe and compose his feelings; and his medicines much relieved him. The motions, of late, when consistent, had been observed to be apparently small in diameter, leading to a suspicion of stricture. A pill of colocynth and calomel was what seemed to answer best in regulating the

bowels ; and, to allay the irritation in the rectum, a pill of extract of poppies, and extract of hyoscyamus, of each three grains, to be taken every six hours.

The above is the outline of the case, with which Mr. HARDY kindly furnished me. On enquiry, he said he had never had the least uneasiness, or affection of bladder, but a great and distressing sense of weight very low down in the bowel.

On examination, there was no appearance of external disease. Within the sphincter I found the bowel not at all contracted, but, on the contrary, its capacity was pretty evidently increased, yet completely altered from its natural state. In parts it was firmly adherent to the sacrum, posteriorly, and laterally, having large firm folds, or ridges, passing in various directions ; not feeling at all as if lymph had been effused into the cavity, but between the coats of the bowel. Upon reflection, the peculiar position of the case enabled me to explain what was new to me, by perceiving that the attack of inflammation must have taken place at the time when the rectum was very much loaded ; a circumstance which, in a neglected and costive habit, might easily occur ; and that the spaces between the masses of hardened fæces had determined the particular cast and figure of the internal surface of the bowel, upon the consolidation of the fluid poured out between its coats.

In consultation, it was determined to continue his medicine, with the addition of an occasional injection of warm gruel, containing thirty drops of laudanum.

Jan. 8. 1821. The medicines had been useful, the injection had afforded him comfort, and, upon the whole, he thought himself somewhat better. As the particular object of this visit was to make a more perfect examination of the bowel, an aperient having operated, the rectum was first injected with warm water ; and a large-sized silver ball,

then introduced, was passed progressively and easily forward, until it reached a natural turn of the intestine. On its removal, the instrument was found to have traversed an extent equal to ten inches, to which extent the bowel was perfectly sound, except in the part already mentioned.

It was considered adviseable to continue the medical treatment, upon the principle already acted on; there being no ground for recommending other means.

Sept. 4. 1821. I received a note, acquainting me with his decease; and that leave had been obtained to examine the body. Mr. HARDY informed me that since the preceding December his bowels had been unsteady, till latterly, when a constant state of diarrhœa supervened. Three months before his death he had been examined in one of the city hospitals, and told he had not only a stricture, but a very bad one, in the bowel. For the last month he had been much distressed by a pain in the bladder, with occasional difficulty in voiding urine.

From the body, which was examined in the coffin, I removed the rectum and bladder. The bowel, laid open and washed, was found considerably enlarged and much thickened, as happens from previous distention and inflammation; this affection having included the lower six inches of the bowel, and having now from long continued irritation formed an extensive ulcer, encircling the lower part of the gut, just above the sphincter.

The appearances observed very exactly demonstrated the correctness of the opinion first given. The inner membrane of the gut, ulcerated away, exposed large irregular patches of light-coloured coagulable lymph deposited in the darker tinted and sloughy cellular membrane. Round the ulcerated margin, the bowel was much thickened, but in no point so firm as to bear any resemblance to scirrhus.

Forwards, the ulceration had spread through all the coats of the intestine, and at one point had reached the muscular substance of the urinary bladder, explaining some of the symptoms.

Above the seat of the disease just described, the bowel seemed in every respect healthy.

CASE 13.

Annular Stricture in the Rectum, with peculiar Excretions of Coagulable Lymph from the Bowels.

July 2. 1821. I was visited by a lady aged 27, who was desired to call upon me by Dr. HOOPER, for a complaint in the rectum. On examination, an obstruction was found, having a central opening, admitting with difficulty the point of the finger. Upon comparing, in consultation, the opinion I had formed upon the nature of this obstruction, with that entertained by Dr. HOOPER, who had also examined the disease, we agreed exactly in considering it a membranous septum near the sphincter. The bowel filled with warm water, a small bougie, passed gently, went on without inducing pain, for eleven inches.

Five years before, this lady had been very ill. Heated and fatigued with carrying a child in her arms, she supposed she had taken cold, as the catamenia, then present, suddenly disappeared. The child being ill, obliged her to be also often out of bed in the night. There was great tenesmus, extreme local heat and distress, with fever, during ten or eleven days of absolute costiveness. With the most urgent desire she sat whole hours in fruitless and wretched pain upon the water-closet; or if the straining incurred any discharge, it was blood only. At length aperient medicines, and injections together, succeeded; but although relieved, she never perfectly recovered this attack, her bowels becoming more prone to confinement, and the passage more difficult and impeded.

In *June*, 1820, she had a severe attack of dreadful pain in the right groin and side ; she lay all night as if held by the cramp, and dare not move. She bathed with warm water, used embrocations, and was told the complaint arose from flatulent cramps in the bowels.

Aug. 13. 1821. I examined in fresh water some filmy substances voided by this lady, with her motions, during pain and disturbance of bowels ; they had, at my request, been separated, washed, and immersed in spirits of wine. They appeared to be so many forms of coagulable lymph, poured out by the same vessels which in health secrete the mucus of the bowels. Some of these films, thin and transparent, were of considerable extent, as thrown off by the whole circumference of the cavity of the bowel. Some masses resembled albumen as it appears in cartilage when reduced to a pulp by long boiling, something like grains of macerated sago. Some fimbriated portions, which unfolded in water, but collapsed when taken out, had more the appearance of a secretion of mucous matter blended with coagulable lymph, as in the adventitious linings that occur in croup. Here and there a few particles of red blood, excreted with the coagulable matter, gave it a tinge. They floated and spread in water, but collapsed and fell to the bottom in rectified spirit.

Within the last week the stomach and bowels had, with considerable relaxation, pain, and disturbance of general health, been deranged, with most distressing uneasiness in the seat of the stricture, during which period the above-mentioned matter had been voided in larger masses, and greater quantity than ever.

Aug. 20. I received a note from this lady, stating she had been “seized with violent pain in the head and lower limbs, with a kind of spasm in the stomach, frequently returning through the day ;

when the pain ceased, leaving her cold, chilly, and trembling.”

I found the abdomen tender, with violent head-ach, and high excitability; there was reason to believe the pains at the stomach were owing to spasm. Bowels rather confined; pulse soft, 112. Castor oil, then saline draughts, and a blister, if necessary, were directed.

Aug. 23. The apothecary in attendance took away some blood from the arm, and at my request applied some leeches to the abdomen, with great relief to the local pain and tenderness. Saline and aperient medicines were continued.

Aug. 24. Head and abdomen now more free from pain; but the eyes constantly shut, not from sleep, but from that peculiar apathy, and disinclination to speak, after a night somewhat delirious, that led me to suspect the excitement was going on to produce effusion between the membranes of the brain; to prevent this, I ordered a large blister to the neck. The next day, the symptoms gone, she was very much better, and was soon enabled to leave her room.

Oct. 9. An attack of severe, incessant, and suffocating vomiting, just relieved by saline draughts, and opiate frictions. This evening, turning in bed, she experienced a very painful sensation, as if a string attached internally to the left groin had suddenly snapped asunder. The part, however, soon became easier. The stricture felt very tender and uneasy. Bougies were occasionally passed; and when the parts were comparatively easy, with manifest advantage.

Feb. 17. 1822. A severe attack of pain had just passed off; this was situated in a line reaching from the seat of the sigmoide flexure of the colon down to the left groin, where it was most severe, with tenderness and inflammatory heat. Within the last week two substances, somewhat resembling long white worms, had been voided; each on the

passage of physic through the bowels, and unattended with pain.

These elongated substances I carefully examined, floated in water, and found them surrounded here and there by little fragments of less perfectly coagulated lymph. The longest of these two substances, originally one but accidentally pulled asunder, was the thickness of a goose-quill, and measured between eight or nine inches in length. With fine silk it could scarcely be tied without being cut asunder. Involved in these substances I discerned several dark-coloured points, which, picked out with a needle, were found to be the pips of currants, proving the substances themselves must have passed from a fluid into a solid state. There was in fact every reason to believe these appearances arose from coagulable lymph effused into some closely contracted part of the intestines, thus forming a cast of the canal.*

June 1. This lady voided another portion of coagulated lymph, about thirteen inches in length; the bowels generally irritable and unsteady, and the motions frequently containing a quantity of filmy appearances, sometimes a teacupfull. It was intended to try the influence of medicine in relieving these complaints, but as the patient could not be prevailed on to swallow any thing of unpleasant flavour, the idea was abandoned.

CASE 14.

Annular Stricture of the Rectum, from Inflammation.

L. R., aged thirty, had inflammation and abscess at the side of the rectum, in the year 1809, followed by two years' ill health, and two operations for fistula. At the close of this period, she felt increased pain in going to stool, and had a considerable mucous discharge from the rectum and vagina. Medical assistance improved her ge-

* These appearances of lymph are preserved in Mr. HEAVISIDE'S Museum.

neral health, but she requested admission into the Infirmary, in *December*, 1811. On examination, I found a contraction, like a thin membranous circle, about two inches within the anus, which appeared to me an affection of the mucous membrane alone. It seemed a very fair case for the application of the *argentum nitratum*, which, I have no doubt, would have relieved, or perhaps cured her, but she objected to it. Repeated trials having proved the irritability of the parts too great to admit of benefit from the unarmed bougie, she left the house. A more particular detail of this case is given in the *Surgical Observations*.

CASE 15.

Stricture in the Rectum.

IN *Nov.* 1811, I operated for fistula in ano upon a lady aged 28; the wound healed readily. In *February* following, I was again consulted for a difficulty occasionally observed in passing her motions. This complaint was inconvenient or distressing, according to the state of her bowels.

On examination, the intestine was found contracted, but so high up, that the part where the stricture was greatest, was beyond the reach of the finger. The gut was not apparently much thickened, nor at all confined laterally: these points were favourable, although the strictured part was extremely irritable. The examination gave much pain, exciting great nervous agitation. She was advised to allow a bougie to be passed; and two days afterwards this was done: a wax bougie, of moderate size, curved to the course of the bowel, was introduced. It was with some difficulty, and very severe pain, that the instrument passed the seat of the contraction; allowed to remain, the pain became easier, but was increased by the withdrawing the bougie, the stricture grasping it very closely. A composing draught was directed to be taken immediately.

The same instrument passed twice a week, for six weeks, so essentially relieved the complaint, (the bougie passing with so much less resistance, and the motions with so much more ease and freedom,) that it was proposed to introduce one that was a size larger ; but as the patient now found herself perfectly free from all the symptoms to which the stricture had given rise, she preferred waiting to see whether she might not remain well, without further assistance.

Since the above period, there has been no return of the complaint.

CASE 16.

Stricture in the Rectum.

June 5. 1823. I was desired to visit in consultation with Mr. NORRIS and Mr. MILES, a lady about the turn of life, of delicate habit, with complaints suspected to proceed from stricture in the bowel, although beyond the reach of any examination by the finger. The motions always dark-coloured and bilious, were never brought away without the aid of cathartic medicines ; and then never figured, or very small. No habitual inflation whatever, nor the least tenderness of abdomen. Under neglect the bowels would remain costive for a week ; and then active doses alone relieved the severe head-ach and sickness at stomach, induced.

June 6. Mr. MILES stating that he had never been able to pass a bougie to his satisfaction, I now injected the bowel with warm water, when a silver ball half an inch in diameter, was stopped at five inches. One of the smallest size was then introduced, but would not by gentle means pass beyond five inches. On throwing up an additional quantity of warm water, and then repeating the examination with the larger sized ball, the instrument passed rather further than at first, a circumstance that might have been dependant either on

some elongation of the lower part of the gut, from the relaxing influence of the contained fluid, or on the stricture being in some measure of a spasmodic nature, so as to admit of the instrument, after repeated trials, passing on further than at first. The matters passed by the bowels, however, were of so acrimonious a nature that whatever favourable opinion might be entertained of the disposition of the contracted part of the bowel, it did not seem to me adviseable to use bougies until the intestines had been well cleared out, and allowed time to recover themselves. We therefore directed some aperient medicines to be regularly taken, and a blue pill to be occasionally added, at bedtime.

June 28. This lady very much relieved, but not perfectly recovered from her late state of local excitement, was requested to continue her medicines, and try the effect of change of air.

CASE 17.

Stricture, from Inflammation of the Rectum.

J. W., a servant, aged thirty-two, in *October*, 1818, slipped in descending some steps, and received a violent contusion upon the perineum. Severe pain and inflammation followed; she, however, continued to do her work.

In the course of a month, no longer able to move, she kept her bed, mentioned the accident, and was advised to poultice and foment: soon after which, the extreme heat, pain, and swelling were relieved by something breaking, as she thought, into the bowel; and the opinion was confirmed by the flow of a copious purulent discharge from the anus: the same kind of matter was, after this, passed constantly with her motions.

Dec. 1. She came into the Infirmary; fomentations and poultices were continued till *January 2*, when the abscess opened externally, near the anus. The same treatment was still continued.

In examining the parts, *January 23*, I found, on the left of the sphincter, some extent of integument detached, perforated in several places, and discharging pus. The verge of the anus was concealed by what seemed hæmorrhoidal tumours, but by their puffy flaccid feel, were ascertained to be only an œdema of the cellular membrane. Passing the finger per anum, I found that what she said as to difficulty in voiding her motions was correct. For an inch and a half the bowel was unaltered; above this an obstruction existed. It was a defined circular ring, formed within the intestine, not at all resembling the feel of the smooth, soft, inner membrane. It firmly adhered to the cavity, and had a contracted central opening, through which with some little pressure, and complaint of pain, I passed my finger, perceiving at the instant a partial laceration of its substance. The stricture was thus ascertained to be not quite two inches in extent, beyond which the bowel was healthy.

The feel of this adventitious substance was very different from that of any originally formed structure: it was peculiarly rough, spongy, somewhat fragile, and capable of being partially detached. A probe, introduced by one of the external openings, discovered a sinus, leading near five inches along the outside of the intestine; the stricture, however, prevented my being able distinctly to feel the point of the probe.

Jan. 26. She said she had been able to pass her stools better since the examination. As a first step in ascertaining the exact tone of the parts, a bougie of tallow was passed through the stricture, and allowed to waste, by the warmth and action of the surrounding parts; a plan that Mr. HEAVISIDE is partial to, as possessing several advantages. It certainly determines the present measure of irritability very accurately, without the risk of increasing it, as the wasting of the bougie is in effect equiva-

lent to its removal, without the disturbance incident to its being withdrawn.

Jan. 30. The same application was repeated.

Feb. 2. A bougie of wax, rather less than the former, covered with oiled lint, was passed through the stricture. This produced increased pain, appearing to depend more on the roughness of surface, than the size of the instrument. It was expected this circumstance might prove an advantage, but it seemed to operate rather unfavourably, creating too much pain and disturbance.

Feb. 6. and 9. The same bougie alone was passed; the operation was much less distressing, and apparently more beneficial, by allowing the parts to remain quiet.

Feb. 15. A bougie of larger size, of elastic gum, was introduced; it passed with great facility, although, from dilating the stricture, it excited an aching pain during the half hour it was allowed to remain. On the 17th and 19th the operation was repeated. On the 23d, I laid open the sinus leading up by the side of the intestine, dressing it with lint, as in the operation for fistula.

March 9. With copious suppuration, and more pain, a slight attack of erysipelatous inflammation came upon the perineum, with tremors, and feverish heat. The rectum, on examination, was found heated, but the circular band of coagulable lymph, though somewhat more contracted, was not perceptibly more firm than before; the bowel beyond the stricture was still in its natural and healthy state.

For these complaints she was directed to foment, and take the bark with sulphuric acid. These means were continued till *April 8*, when, being quite recovered from the attack of inflammation, and much improved in strength, she was recommended to try the cold bath, the discharge being still rather considerable. The cold bath proved rather too powerful, and it was therefore repeated

locally only. The internal use of tonics, and the regular introduction of the bougie, were now continued on to the 20th of *April*, when a very large sized bougie passed with perfect ease, and the discharge had nearly ceased. She now felt herself sufficiently recovered to propose leaving the Infirmary and returning to service, since which she has remained well.

CASE 18.

Stricture in the Rectum.

July 27. 1821. I was visited by a gentleman, aged 37, from Newmarket. He said he had been advised by his medical friends to come to town for my opinion; and stated that his complaint was believed to be stricture. For many years disposed to costiveness; he had about three years back had a severe attack of dysentery; since which period he had been subject to frequent uneasiness and aching pain towards the lower end of the bowel, and a sensation in passing a motion “as if the fæces were passing over a sore place.”

On examination, there was no fulness about the sphincter, within which the cavity of the bowel, to the finger, was free and spacious. As he was obliged to return home early in the morning, I next examined the more internal parts of the bowel, passing a middle-sized silver ball probe, which was stopped with uneasiness and pain, at six and a half inches; where the gut felt firm, as well as obstructed. Some warm water was then injected, and with management the same ball was now passed over several compact and rugged inequalities of surface to eight inches, where the disease appeared to terminate. The parts felt as if attached to the sacrum. The motions he observed, frequently were passed in the form of hardened pellets, resembling sheep's dung. Of late there was always a sense of pain in the seat of the affection,

especially after a stool ; and occasionally a painful sensation thence, extending along the inside of the left thigh and leg, quite down to the toes. The bowels being confined, I directed the following draught ; infusion of cascarilla, ʒviij. , sulphate of magnesia ʒss. , tincture of orange-peel, ʒi. , to be taken twice a-day.

Aug. 11. This gentleman returning to town, I succeeded, after injecting the bowel, in introducing a metallic bougie, three-eighths of an inch diameter, passing it to the extent of between nine and ten inches. Some pain was incurred by the operation ; but this soon subsided. The medicine having answered its purpose extremely well, was continued.

Aug. 23. Appetite much improved ; the evacuations better, easier, and more copious. The former bougie now passed with more freedom. I directed a draught with the compound infusion of gentian, and tincture of cascarilla, to be taken every morning ; and recommended his returning home.

CASE 19.

Stricture of the Rectum, mistaken for Dyspepsia.

AN elderly man, upwards of fifty, complained of pain, load and uneasiness at stomach, he was restless, his eyes suffused with a bilious tinge, yet the evacuations were sufficiently coloured with bile. His health was rather improved by taking a laxative pill of rhubarb, ipecacuanha, and divided doses of calumba and soda. He had before placed himself under medical treatment for the same complaint of stomach, supposed to be his only disorder ; at that time alteratives and bitter infusions seemed to relieve him ; but the returning attacks became more severe and obstinate.

In process of time his nights became restless, but having had a suspicious connection he became

alarmed, and could not be persuaded the weariness in his limbs, shooting and lancinating pains in the groins, numbness in the scrotum, and pain in the urethra and back, were attributable to any thing but infection. He would hardly listen to the suggestion of any other cause, until Mr. SPILSBURY explained that the secondary symptoms of lues were preceded by a primary affection, certain and unerring in character. The bladder sounded, was found in a healthy state; the urethra without stricture. On introducing the finger into the rectum the entrance was found narrow, and a little way in the walls somewhat thickened, but no stricture within reach; the prostate was much enlarged. A small rectum bougie oiled was passed; and at the distance of about six inches resistance was found, but on a little pressure the point advanced, when immediately both groins were seized with lancinating pains. It required some days to allay the irritation from the bougie. Subsequently his plan of treatment was confined to palliative means, the application of the bougie being evidently improper.

CASE 20.

Stricture of the Rectum.

A MAN, aged 35, consulted Mr. SPILSBURY almost in despair, for venereal symptoms. His distress was occasioned by constant pain, referred to the end of the penis, with uneasiness about the scrotum. He had been under the care of three medical men, all of whom had mercurialized him either by pill or potion for this said lues; at last one sagaciously observed, if it was it, he had taken medicine enough to cure a dozen, and that he really did not know what to do with him.

In this state he visited Mr. S., but neither by his own account or by examination could he detect his having had a single venereal symptom. His fears

had been excited, and appeared to have been taken advantage of, for each of his attendants, for a period longer or shorter, had put him under the venereal treatment. The bladder was sounded, without discovering stone, or stricture; but the pain and heaviness in the loins led to examining the rectum, when about five inches above the sphincter a stricture was discovered.

By the use of bougies, the pains and other symptoms in a great measure ceased, but an attack of rheumatic fever, for the present set aside the continuance of the necessary local treatment.

CASE 21.

Stricture in the Rectum, from affection of Womb.

April 19. 1821. I was consulted by a lady, aged 45, with a complaint in the rectum, for two years troublesome, but for the last few months so much so, as to prevent her ever passing a confined stool. From exposure to chill in her first lying-in, she had ever since been subject to take cold, as she termed it, in the womb.

In *Nov. 1820*, an attack came on, attended with a dull, obscure sense of weight and uneasiness about the womb and bladder, and distress in making water; the quantity of urine being so excessive that she sometimes passed a gallon a day.

At the present time there was obscure pain about the bottom of the back, and numbness down the left thigh, which symptoms were peculiarly distressing during the late attack; and from that time she was certain she had found hard matters in the bowels would not pass away, and was consequently disposed to believe the one complaint might have brought on the other.

The contents of the bowels seemed to pass freely enough, whether wind or fæces, to a certain point, of which she was constantly sensible, about the

bottom of the back ; beyond this, or rather at this point, there was difficulty.

Of late she never could procure a motion without the use of strong medicines. These relieved the bowels of their load, but never failed to increase local uneasiness and irritation.

April 19. I requested her to take a draught containing infusion of senna ʒvj., compound infusion of gentian ʒj., tincture of senna ʒiss., sulphate of magnesia, ʒij., manna ʒss., twice a day.

April 25. The medicine had operated gently, but greatly to her relief, without the least of that irritation, invariably attending the use of other medicines. In examining the bowel, the middle sized silver ball detected a stricture at four inches and a half ; carefully introduced, it excited neither pain or uneasiness.

April 30. Repeated attempts to pass a bougie beyond the stricture, had excited uneasy sensations in the bowel, with unusually distressing pain in the back, and a sense of irritation in the womb, which induced me, for the present, to lay aside the introduction of instruments. The bowels were still regulated by the aperient draught, and an opiate embrocation directed, to be occasionally rubbed upon the abdomen.

May 21. This lady said her motions now gave no pain in passing, but a sense of heat, and distressing uneasiness proceeded from the back, passing through the body, and thence down the left leg, as it had long done, so that occasionally she could scarcely put it to the ground. Many months back, this pain had been peculiarly severe during the temporary suspension of the catamenia ; but was relieved upon their return. An anodyne clyster was directed to be thrown up warm every evening.

June 6. All the complaints of pain and uneasiness, both local and sympathetic, actually gone. All that she now expressed anxiety about,

was the probability that the medicine may lose its effect. She said she was “exceedingly relieved, and very much better,” and that she “suffered nothing in fact;” although still nothing of solid substance would pass.

CASE 22.

Stricture in the Rectum.

AN elderly woman had long complained, although with no distinct evidence of bad health. She either assigned her occasional paroxysms of pain in the back to rheumatism, or gravel; when it was thought to be rheumatism, it was treated with a strengthening plaster: when gravel, by gin and water at bed-time. Her paroxysms became more severe, the occasional expulsion of wind from the stomach was assisted more frequently, and by necessity, with ginger and mint tea. Loss of flesh and restlessness required larger doses of a composing electuary; so that her life was occupied in ringing the changes on wind, rheumatism, and gravel.

Not exactly satisfied with her urgency that she knew her complaints and remedies, but, with significant hints that she was a martyr to her husband, Mr. SPILSBURY made an examination of the rectum, and immediately within the sphincter found the gut contracted, exhibiting to the feel an indurated hard tench’s mouth, which the point of the little finger would not enter. The poor woman would not submit to any treatment, but still insisted on her imaginary diseases; and for the last few months had been in a declining and sinking state.

CASE 23.

Stricture in the Rectum.

Jan. 5. 1821. A middle-aged gentleman visited me, having come from Cambridge for my opinion,

upon a complaint that he said by some had been considered mental, by others corporeal, and by some few a mixture of both together. He had of late been extremely annoyed by flatulent complaints in the bowels, and an uneasy sense of tightness in the abdomen; now and then to spasmodic pains in one or other part of the intestines. Purgative medicines he had frequently used, and at first they were beneficial, but latterly they not only failed to relieve by relaxing, but invariably created additional distress, by aggravating the uneasiness, pain, and flatulence. He said no one had enquired into the existence of any local complaint. He had consulted one physician who belonged to the university, who, considering the disorder dependant on weakness, had prescribed for him, without benefit. He had also seen a physician of high reputation in London, who told him his complaint was indigestion, and that his prescription would cure him presently, but it did nothing. Usually his bowels were relaxed, but he never seemed relieved, nor ever felt as if his intestines were fairly emptied; even when he had frequent motions. Occasionally, when his bowels were somewhat confined, he found that he passed consistent stools of as large diameter as ever, which staggered his belief as to stricture.

I passed a large sized silver ball, and found a firm and fixed stop at six and a half inches, where it appeared that the bowel was attached to the sacrum. The examination, conducted with care, gave no material pain. Not thinking it prudent to risk further disturbance of the parts at present, I directed a mild aperient, requesting to see him again in a fortnight.

Jan. 18. This gentleman visited me again, but I could neither get the smallest sized silver ball, nor a middle sized urethra bougie to pass further than six and a half inches, although the attempts were repeated with the greatest care; the neces-

sity for which was intimated by a slight degree of pressure exciting a painful sense of heat in the seat of the disease. He now observed, that for the last two years he had occasionally been used to feel at the lower part of his loins a peculiar aching pain, most frequently when costive; and also an occasional sense of heat in the bowel itself, similar to that he felt at present. Directed a gentle anodyne, as a night draught.

Feb. 2. Received another visit from my patient, who said he had derived comfort and relief from the medicine last ordered. He was anxious to have the application of the bougie repeated, but I thought it more prudent to postpone it, and consequently ordered his medicine to be continued.

May 14. Returning to town he informed me his medical attendants endeavouring to pass a bougie, had lately found an obstruction low down, and on examining with the finger, had discovered an inverted state of the gut. An injection thrown up, the finger found the cavity of the rectum clear again, but the moment the injected fluid was expelled, the bowel again inverted, was felt as before; and this was frequently found to be the case.

Within the last month or two, the irritation from air confined in the bowels, had appeared to induce a frequency in making water. A large wax bougie was once passed beyond the stricture. It produced pain in the testicles and urethra; but the subsequent irritation was trifling. He was ordered an aperient draught at bed-time.

May 15. The medicine had operated but imperfectly. Passing my finger I found the inverted gut had fallen down against the sphincter. This state of intus-susception was readily reduced by injecting the bowel, which he observed, his surgeon in the country was always obliged to do before any instrument would pass. I then passed a middle sized silver ball probe, which slipped through several elastic, yet firm contractions in the canal;

near the seat of the stricture. This instrument removed, a curved metallic sound, the diameter of the silver ball, was with some management, and a little pain, passed ten or eleven inches.

May 18. The same sound passed pretty easily ; but one of a size larger would not pass at all.

May 21. After using the small sound, one three sizes larger was passed through the stricture ; exciting occasionally very painful griping sensations, from spasm in different parts of the transverse arch of the colon, driving the flatus to and fro, through the bowel. Occasionally a sense of great weight or numbness in the lower belly and limbs was troublesome.

May 23. He stated to me, that while in the country, he one evening chewed some rhubarb, the next morning breakfasted, and riding gently on horseback an hour after, he felt uneasy in his bowels, and alighted. On passing a scanty loose motion, he found it little else than the yolk and white of an egg, as unchanged as at the moment he had eaten it. He thought this remarkable, as he had not touched egg for three weeks before. Without the injection I could not pass a bougie beyond six inches.

May 30. Having injected the bowel, I had been enabled to pass the stricture with the largest sized bougie every second day since the 23d instant. The urine was turbid, with a prickling acute pain in the glans penis, but none in the stricture. I directed a draught containing the camphorated tincture of opium, and camphor mixture. Left town for Cambridge.

June 4. Upon his return to London the stricture was more contracted and irritable. It was with difficulty and pain that I passed the smallest sized instrument. He was directed a medicine containing manna $\mathfrak{z}\text{i}$., infusion of senna $\mathfrak{z}\text{ij}$., compound infusion of gentian $\mathfrak{z}\text{ss}$., and sulphate of magnesia $\mathfrak{z}\text{ss}$., to be taken twice a day.

June 6. Was able to pass the largest sized metallic bougie (an inch in diameter) twelve inches along the bowel, with almost perfect ease.

June 15. He was advised to return home, and lay aside surgery for the present; large bougies having been several times passed with ease.

July 3. 1823. This gentleman visited me again, in improved health. He had much less difficulty in procuring stools, but described peculiar nervous fluttering sensations sometimes felt in the bowel, subsequent to voiding a motion. The rectum injected, the largest ball passed with very great ease its whole length, 14 inches; but, although there was now no contraction, there was a change of structure with thickening, apparently of the coats of the gut, between four and nine inches above the sphincter. I directed some gentle anodynes, and the occasional use of light aperient medicines.

CASE 24.

Stricture in the Rectum.

Nov. 25. 1820. On calling at home, I found a gentleman waiting to see me, who had come from Bath, to desire my opinion. He stated that he had been attended by a surgeon in that city, who had told him he had a stricture in the rectum. He said he wished to know from me whether it was so, or not. He had suffered no pain or uneasiness, direct or sympathetic. His bowels were somewhat variable, but tolerably regular; he said his principal reason for doubting the existence of stricture, was his occasionally passing a solid stool of considerable diameter. On more close enquiry, however, it turned out, that the first portion only was large, the next being always squeezed and small; and that the length of the large mass never exceeded three or four inches.

In examination, the largest silver ball-probe passed up to a stricture, which was not only a

gradual contraction with progressively increased thickening of the parietes from the sphincter, but a disease firmly fixed in the pelvis. The ball wedged in, was with difficulty moved, when it had reached five inches. The intermediate space allowed the passage of the ball with some hesitation. The texture was apparently elastic and subcartilaginous. The introduction of a ball the next size smaller, gave precisely the same impression, only passing rather further into the contraction. The examination gave no pain, nor any uneasiness.

I stated it was most true that there was a stricture, not apparently of a spasmodic, but permanent kind; and that the appearance of the fæces was owing to their having passed the stricture while soft, and having become hard in consistence, while retained in the lower part of the bowel.

He requested to know if I had any directions to give, with regard to his treatment; observing, that if possible, he would in two months see me again. I stated, that if a bougie could be passed beyond the stricture daily for a week or two, without pain, it appeared to me proper to proceed to the use of one a size larger; but that as to the particulars of the necessary treatment, or the peculiar tendency the complaint might manifest in future, they could only be ascertained by some continued attention to the effect of the means proposed.

CASE 25.

Stricture in the Rectum, with affection of the Bladder, from habitual Intus-susception.

Jan. 30. 1823. I was requested to visit, in consultation, a middle aged gentleman. For several years past, he said his bowels had been generally disordered; first from cold. Violent looseness was followed by absolute and obstinate

costiveness. He was directed pills, but they failed, and he was eleven or twelve days without any stool. Since that period he had become subject to constant and severe local uneasiness. Pain at the bottom of the back, and especially about the left groin and thigh, with occasional uneasiness in the bladder, when the other pains were urgent. One surgeon told him it was costiveness only, and another said it originated in enlargement of prostate gland; though on examination I found that part perfectly healthy. For the last three months bougies had been passed, but it was generally necessary to pass the finger first, and the bougie after it, to find the proper opening of the stricture within the bowel.

I found almost close to the sphincter a gaping yielding obstruction, with considerable thickening, feeling very uneven certainly, and perhaps ragged; as far as I could reach with the finger the contracted part seemed disposed to yield, without pain, irritation, or difficulty. There was no sense of local heat, nor any distinctly malignant character, although sometimes much pain. It was agreed that he should take the pil. hydr. with extr. conii. and an infusion of senna, with Epsom salts, and manna, occasionally. The diet to be light, unstimulating, and easy of digestion.

April 14. Was requested to visit him again, his former surgeon having discontinued his visits. I found bougies had been still occasionally continued; but his complaints were worse, and he now frequently felt a steady sense of heat in the parts. The affection of bladder particularly, he described as at once constant, and yet transitory. Sometimes he passed his water pretty well, and perhaps tried to pass it with a full bladder, and was unable to void a drop; and once, so situated, leaving the night-chair, felt as if he could pass it, turned round, and with perfect ease and a full stream, he at once voided a quart.

May 2. By the occasional use of starch injections, with laudanum, and anodyne medicines, he found himself much more free from pain, but in other respects remained nearly the same. It appeared to me, upon the most attentive consideration, that the bowels in this case, naturally irritable and weak, had been subject to become partially inverted, by the upper contracted part falling down into the lower relaxed part of the rectum, and that, while in this state, the bowel had become loaded, and most likely, from the account he gave of his feelings at the time, inflamed. This last change would necessarily render the previous position of the parts permanent, and leave them in precisely those circumstances in which, by examining with the finger, I found them; which circumstances could not be otherwise perfectly explained. A similar position, as an occasional accident, I have met with in other instances; where, however, the affection was only of a temporary nature, the parts not having suffered from any attack of inflammation.*

May 8. The composing draught taken last night induced sleep, and yet he doubted its lessening local pain. The attempt to make water often brought on a desire to pass a stool, then either a little wind, or a little dark blood, passed the anus, and that instant the water was stopped, and he could pass no more for half an hour or an hour, when perhaps it would again flow in a full stream. After voiding a stool, liquid or solid, he felt much pain all about the hips, and back. Medicines with little variation continued.

May 14. Yesterday he thought a motion wanted to pass the stricture, feeling constant desire, though a little blood only passed; and because he felt a peculiar sensation in the middle of the inside of the left thigh, as when the bougies were passed, a

* See Cases 23. 59. and 71.

kind of throbbing pain. Towards evening a copious stool passed, and his thigh became easier. The loaded rectum, he said, he could feel press, in the stricture, and in the thigh also; and this had been the case through the course of the disease, so that if the strictured part was only touched with the bougie, he always felt it instantly in that particular part of the thigh.

May 23. In most respects much easier from his medicines, but he thought the quantity of urine secreted was diminishing, upon which account, in addition to the above remedies, he was recommended to take an ætherial draught, with the tincture of hyoscyamus occasionally; which had the twofold effect of increasing the secretion of urine, and diminishing pain in the region of the loins.

June 25. He was much the same. The power of voiding his urine, however, was decidedly improved.

CASE 26.

Stricture in the Rectum.

June 13. 1820. I was consulted by a gentleman aged 78. He stated that about four years back he had a typhus fever, from which he recovered slowly; and that during his convalescence he first observed an irritation about the bladder, obliging him to void his urine more frequently than before. Independent of this, he thought that lately, although his bowels acted regularly, there was a defect in the power of expelling his fæces. He had already consulted several surgeons of eminence, one of whom, to satisfy himself there was no stricture in the urethra, had passed a bougie freely into the bladder. By the rectum, the finger at once ascertained considerable enlargement of the prostate gland, but no apparent disease in the bowel. I therefore directed him for the evening a gentle anodyne, and for the morning an aperient

draught, requesting to see him again in a few days.

June 19. The bowels had been kept clear, and he thought himself upon the whole rather better. I now examined the bowel with a bougie three-fourths of an inch in diameter, and at five inches found a firm stricture; when the instrument was pushed half an inch further, the elasticity of the bowel brought it back again, proving it had not passed the disease, and also that the disease was not yet attached to the sacrum.

June 22. An elastic-gum bougie half an inch in diameter was introduced, and passed with some resistance to six inches, where it became closely wedged into the stricture. In a few minutes the instrument was withdrawn. During the early part of *July* a bougie was several times introduced, and with evident benefit, the motions now passing with much more freedom than before. Being about to leave town, he was advised to continue the above plan of treatment.

CASE 27.

Stricture in the Rectum.

Nov. 2. 1820. I was consulted by a gentleman, aged 51, who said he had a stricture in the rectum, which was frequently attended with much pain, and for which he had been under the care of various surgeons; some of whom had examined his complaint, and others not. To the extent that could be reached with the finger, the bowel was apparently sound; an elastic bougie half an inch in diameter traversed the first six inches freely, and then with some hesitation passed through a part where the space was evidently diminished, and the surface irritable. For about an inch the progress of the instrument was impeded, after which

it appeared to pass forward more freely again. The examination gave no pain.

He had for the last ten years been subject to violent attacks of spasmodic diarrhœa, which returned every spring and fall; from these attacks he found no medicine relieve him till he tried opium, which invariably succeeded. He observed, that in the early treatment of his stricture, a surgeon of great celebrity had put him to the most extreme distress and pain, by the manner in which he applied the bougie. One surgeon had recommended him to go to Leamington, and drink the waters; at which place he said a medical gentleman had passed a bougie four inches, and told him he dare not pass it further, for at that part was a valve, which if injured would cost him his life. Under the direction of this gentleman he took calomel regularly for six weeks, with a very sore mouth most of the time. The only effect of this treatment, he thought, was to render him weaker and more irritable than before.

Nov. 5. The bougie introduced on the 2d inst. was now passed with more ease. He observed, he had for a long time been occasionally subject to an uneasiness and pain in his right hip, but never in the stricture itself.

Nov. 9. Had taken castor oil, which with straining had induced two small motions this morning. The instrument very gently introduced, would not pass beyond the sphincter. Suspecting displacement, I passed my finger, and found the whole of the diseased part accidentally brought within reach, so that the point of the finger evidently went through it into a relaxed and smooth part of the bowel. The extent of the disease was near two inches, its feel was that of an unequal thickening in the coats of the bowel, originating, as I conceived, in the cellular membrane, and not affecting the muscular fibres, for I found less actual contraction than I expected, the

spaces between the thickened points admitting of relaxation.

Nov. 12. He believed he had taken cold, having some little frequency in passing water, with occasional chills, indisposition, and quickened pulse. He had taken ten grains of the compound powder of ipecacuan, in an evening draught for the last two days. Perspiration free over the body, but deficient in the legs and feet, which were always cold through the night. This morning castor oil operated easily. Rather more pain in the hip. Pulse 80 ; tongue clean.

Nov. 15. Thought himself in some respects rather better ; but the bladder still irritable, with occasional darts of pain from behind forward into the glans ; directed the volatile tincture of guaiacum, with tincture of opium in a draught to be taken twice a day. Passed an elastic gum bougie three-fourths of an inch in diameter, eight inches along the rectum. It excited no uneasiness, and was therefore allowed to remain ten minutes.

Nov. 20. He said he was very poorly, and thought his complaints worse ; for that he could get no motion without medicine, and when he felt the stool reach the seat of the stricture, he perceived a pain affecting the bladder with a desire to pass water, and until he had voided urine (which perhaps he could not do directly) he was unable to pass his stool, but afterwards he could. His features were shrunk, and he was evidently altering for the worse. Directing him an anodyne, I did not pass a bougie ; but suspected some communication was about to form between the disease in the rectum, and the cavity of the bladder.

Nov. 28. Observed, that the sensations he occasionally felt in passing his water must, as he thought, depend on wind escaping from the bladder along the urethra, for that, sometimes a white mucous matter would make its appearance in little bubbles, accompanied with a noise as of

air escaping from the orifice of the urethra. He said the idea had occurred to him doubtfully at first, but that he was now sure it must be so. The medicines were continued.

Dec. 7. This gentleman wrote, saying he was so poorly, that he should feel much obliged by my paying him a visit at his own house at the east end of the town. I called the following day, and found him worse; complaining of severe and distressing spasms in various parts of his bowels. A saline, ætherial, and opiate draught was directed to be taken three or four times a day.

Dec. 11. Still in constant distress, from the severe and frequently returning spasms in the bowels. For his relief in aid of the former medicines, I now directed an opiate embrocation, to be rubbed upon the pit of the stomach during the continuance of spasm. From this application he derived much comfort and benefit.

Dec. 18. The spasms were still harassing, but he had been also distressed by a pain in the right side, in the region of the liver; for this Mr. HEATH, who was his family surgeon, directed some leeches to be applied, a measure which soon relieved him. The spasms in the bowels, however, still continued to return, rendering his stomach irritable, his nights watchful, his days wearisome, and his prospects altogether hopeless. He continued to decline till *Jan. 23, 1821*, when he expired; worn away almost to a shadow, by great pain and long-continued irritation.

On the second day after death, with the kind assistance of Mr. HEATH, I examined the body. The abdomen was much enlarged, but the body and limbs excessively emaciated. The bowels throughout were inflated, but were, generally speaking, sound; although, a partial inflammatory blush upon the jejunum, pointed out the seat of the pain which had rendered it necessary to have recourse to the local abstraction of blood.

The stomach, partly contracted, was by no means diseased; neither was the pylorus materially thickened. The small intestines, except in being considerably enlarged, were healthy. The colon, although it had most probably been the seat of the spasmodic pains during life, exhibited no appearance to confirm the supposition. This bowel was equally and very considerably inflated through its whole course. The contents of the pelvis were removed, and washed, for more particular examination. On laying open the rectum, the extent of the principal disease was found to be confined to the extent of about two inches, the coats of the intestine being at this part much thickened, and diseased. The internal surface of the gut, for several inches above the stricture, exhibited several small spots, where ulceration of the mucous membrane had taken place; there was however no remaining appearance of surrounding inflammation.

In dissecting out the bowel, I found that an extensive abscess had formed in the cavity of the pelvis, upon the right side of the rectum; which abscess, it was afterwards ascertained, communicated with the gut. The stricture in the diseased part of the intestine was apparently the result of some very remote attack of inflammation, or if not, of some chronic excitement, inducing a secretion of a soft white matter, in tubercular masses, the mucous membrane of the bowel covering which, displayed the fine branches of several capillary arteries, shooting into the diseased structure.

The abscess, into which it appeared some previously deposited masses of coagulable lymph had been let loose by the ulcerative process, was situated, as above mentioned, on the right side of the intestine; near the seat of those dull heavy pains which so long had affected the hip.

In the bladder, directly behind the prostate gland, was a membranous fold, similar in situation,

and somewhat similar in appearance, to that described and engraved in the history of a case related elsewhere.* In the present case, this membranous fold did not project forward enough to produce the serious consequence which, in the former instance, proved fatal; but it was highly vascular, irritable, and upon its margin fungated. Raising the divided edges of the bladder at this part, lifted up this valve, exposing a large ulcerated opening, by which a full-sized urethra bougie passed from the bladder, through the abscess, into the diseased part of the rectum. This disease is preserved in Mr. HEAVISIDE's museum.

CASE 28.

Stricture in the Rectum.

Feb. 18. 1821. I was consulted by a gentleman, about thirty-five years of age, from the neighbourhood of Manchester, who said his complaints, for which he had consulted many medical gentlemen, were rather peculiar. Some had supposed one thing, and some another. Several had been led to think the liver affected; and one of the last physicians he had consulted had stated his conviction that the mesenteric glands were enlarged. His principal uneasiness, he said, was about the lower part of the belly, where, especially after fatigue, he experienced a sense of irksome weight, and continuing uneasiness. His complaints were of long standing; and fifteen or twenty years back, when in their commencement, he used to feel occasional pain just behind the left hip, affecting the whole limb, which had become permanently weakened, and perceptibly emaciated. His bowels were somewhat variable, but generally regular, and very easily acted upon by purgatives. The stools, when solid, were of large diameter.

* Practical Treatise on the Diseases of Urine and Urinary Organs.

I stated to him that from the account he had given me, I was clearly of opinion that his bowels were out of health; and that as I could neither perceive enlargement or tenderness, either in the region of the liver, or any other part of the abdomen, I was inclined to think the principal complaint was in the bowels; which complaint, by a steady perseverance in the use of proper medicines, might perhaps in time be removed; but that I should consider it right to ascertain by examination, whether the rectum was in a healthy state. This he said was a measure that not one of his numerous medical attendants had ever thought of, but that he should of course submit to whatever was judged necessary. I directed an infusion of gentian and cascarilla.

Feb. 20. Said the medicines had perfectly agreed with him, and that he was himself of opinion that his principal complaints were in the bowels, because he uniformly found that when he took a hearty meal, he felt the weight and uneasiness come on, and that as the digestive process went forward, he became progressively easier and lighter. His bowels were not in a favourable state for examination, being rather confined. Directed the decoction of bark with infusion of cascarilla.

Feb. 23. Observed that he was somewhat better, his bowels being relaxed. I therefore examined the rectum, passing a ball seven-eighths of an inch diameter, with some little constriction, at three inches on to five inches, where it stopped short in a gradual contraction of the bowel, which was thickened, and partially attached to the sacrum. On repeating the examination with a ball of three-eighths of an inch, it passed easily on to five and a half inches; but no art could get it further.

I was now able to state to him, that his complaint was a stricture of the rectum, and that it might and would require the occasional and judicious use of instruments, as well as the employment

of proper medicines. In answer to his enquiries relating to the affection of his left leg and thigh, he was informed, that, provided the primary complaint, which was seated in the bowel, was gradually relieved by the treatment, which there was reason to hope it would be, the affection of the limb, nervous and sympathetic, would be relieved also.

CASE 29.

Scirrhus Stricture in the Rectum.

A LABOURING man, aged fifty-two, with much pain in the loins, became subject to irritation at the neck of the bladder. The urine flowed freely, but was followed by pain and straining, which in a few weeks became very violent. His bowels were confined, so as frequently to require physic. After three months he applied to the Infirmary, and I was requested to see him, in *February*, 1810. He had then severe pains in the back and loins, with lameness of one thigh. There was no appearance of ill health about the limb, but as the bowels were costive, some opening medicine was directed.

The distress in making water increased, the urine depositing a thick white sediment. The irritation in the bladder allowed him no rest, frequently inducing irresistible desire, though with fruitless efforts to pass a motion. Bougies passed into the urethra threw no light upon the case; I therefore examined by the rectum, which was firmly contracted just within reach of the finger.

Extreme irritability rendering the common bougie objectionable, a curved wax taper was introduced, and allowed to remain half an hour; and, after some days, the operation was repeated. The wax bougie was then exchanged for one of tallow: this proved to be the only tolerable mode of operating by pressure. To the finger, the inner

membrane of the bowel felt as if puckered up into small short ridges, or folds; the other coats of the intestine were evidently much thickened, as well as contracted. The disease was firmly attached to the sacrum.

He soon became subject to severe spasmodic darting pains in the strictured part, all the symptoms gaining ground, till at length any further attempt at relief by the use of the bougie was given up. Worn down by extreme irritation and pain, with dropsical effusion into the abdomen, he sunk, and died, *April 10. 1810.*

On opening the body, a very extensive scirrhus disease was found in the omentum and stomach; but the largest mass was formed by the rectum. At the upper part of the pelvis this intestine was firmly fixed to the spine and sacrum, by an extensive thickening of parts around the gut, the coats of which had undergone a very complete conversion into the true scirrhus stricture.

Removed from the pelvis, the anterior line of the intestine was laid open, from the anus upwards, dividing through the stricture. The contraction had commenced several inches above the sphincter, extending thence upwards and downwards. The section of the disease, from the margin of the villous coat to that of the peritoneal covering, measured three quarters of an inch in thickness.

The urinary bladder, in structure undiseased, was exceedingly contracted, and consequently thickened, the effect of long-continued irritation from sympathy. The cavity would scarcely contain a table spoonful; the inner membrane was exceedingly vascular. *

* An engraving of the appearance of the bladder is given in Practical Treatise on the Diseases of the Urine and Urinary Organs.—Longman, 1823.

CASE 30.

Inflammation of the Colon, terminating in Effusion.

THE subject of the following case was a lady, whose complaints had, by various practitioners, been attributed to disease in the liver; upon which presumption she had, in the early part of her illness, been repeatedly subjected to the influence of mercury, without benefit. Of several who had seen and attended her, Dr. HOOPER was the only physician who could never be persuaded to believe her complaints hepatic, notwithstanding constant local uneasiness, frequently severe pain, and a degree of tumour below the cartilages of the ribs on the right side, with occasional pain at the shoulder. The action of the bowels was irregular: sometimes there were twenty-four stools in as many hours; at others, strong purgatives were required to be frequently given for days together, without effect.

A variety of medicines were directed; but opiates only, when powerful, gave much relief. In the latter period of her illness, I was desired to see her on account of dropsy. She went through the operation of tapping four times, and on each of these occasions I drew off, on the average, four gallons of fluid. She died *February* 12. 1820.

On examination, in presence of Dr. HOOPER, I found a thickened, discoloured, soft and elastic tumour lying across the upper part of the abdomen, a circumscribed portion of which tumour had visibly raised the external parietes, previous to their being laid aside. From the right extremity of this tumour several strong adhesions passed off to the adjacent surface of the parietes; from its anterior part also several short thick cords, the result of effusion, were firmly attached to the peritoneum, just within the scrobiculus cordis. The tumour itself turned out to be the stomach and transverse

arch of the colon, closely and completely adherent to each other ; the former viscus much discoloured, the latter much diseased, so altered in texture, and so much thickened, as to have entirely lost its natural characters.

The tumour, which during life had given an additional cast of ambiguity to the case, proved to be merely a part of the stomach, which, from the adhesions by which at most other parts it was confined, had occasionally formed a tender, irritable, and painful point, externally.

The adhesions just mentioned were exceedingly strong, and all proceeded from the colon, which had evidently been the seat of the primary inflammation. The bands attached to the scrobiculus cordis clearly explained the distressing sense of gnawing, or burning, or glowing heat, with the occasional sense of pulling, or drawing at that part, from which she was never altogether free.

The ascites proved to have been merely the consequence of the derangement in the function of absorption, resulting from the first inflammation ; for the liver was healthy in structure, although its peritoneal covering was somewhat thickened.

CASE 31.

Probable Stricture in the Colon, with diseased Rectum.

A GENTLEMAN aged 35, consulted me Jan. 5. 1822, for habitually confined bowels, and a frequent and severe pain in the lower part of the belly just before going to stool ; these complaints having been for several years very troublesome. In 1819, conceiving the stream of urine was diminishing, a bougie was passed, but no stricture found. Early in the complaint the stools used to be costive, but rendered in large and uniform single masses ; lately they commonly consisted of a great number of small pieces, like sheep's dung.

In the early part of *Nov.* 1821, he had an attack of dull pain under the right ribs, aggravated when he lay on that side. This subsided, and was well in a few days. For its relief, he had leeches and a blister to the part, and took medicines that brought away several dark fæculent stools daily.

Of late he frequently, and indeed generally, was awake during most of the night, with a sense of uneasiness in the seat of the sigmoide flexure of the colon, under the edges of the lower left ribs, as if wind confined wanted to pass. Sometimes when the flatus was able to pass, he could feel it make progress downwards, and he then obtained some relief by breaking wind. He observed that he never rested well, or slept comfortably; from no particular pain, but he was restless, and never long in one position. Pulse 84; tongue clean; appetite tolerably good.

Some warm water injected into the bowel, its cavity was examined, and a large sized silver ball probe passed over an apparently thickened and unequal surface, to the extent of between twelve and thirteen inches; but without any trace of stricture, or particular irritability. Examined externally, the abdomen was free from pain on pressure, except about the seat of the flexure of the colon, under the left ribs, which was tender when pressed.

Jan. 7. I directed compound infusion of gentian $\mathfrak{z}\text{v}$. decoction of bark $\mathfrak{z}\text{ij}$. sulphate of magnesia $\mathfrak{z}\text{i}$. in a draught, to be taken every morning.

Jan. 14. The medicine had operated well the first day, but afterwards insufficiently. The aperient power of the draught was therefore increased.

Jan. 28. This gentleman acquainted me that the medicine as last ordered had agreed very well, and that he had now a regular and free motion, daily. He observed he had now much less frequent distress from wind accumulating about the

flexure of the colon, and a sense of greater ease and freedom of passage at that part than before. Upon the whole he was "most essentially better," and had an idea that the continuance of medicine might not be necessary. He was however requested to go on with the same means which had relieved him, for at least some time longer.

CASE 32.

*Inflammation in the Colon, followed by Stricture.**

FOR as many as seven or eight years before his death, the Rev. Dr. M—Y had usually about twenty purging stools in the course of the twenty-four hours, from a complaint in his bowels, which he believed originated in a blow previously received upon the side of the belly. The principal seat of this complaint he always pointed out so exactly in his emaciated state, that it was observed at the time it must be in the colon, where it passes down on the outside of the left kidney. It was thought probable there might be some contraction or ulceration at that place.

About three years before his death he had a fistula in ano, for which he was successfully cut, and, from the time of the inflammation that led to the fistula, he was sensible that the lower part of the rectum remained in an awkward uneasy state, rendering it painful and difficult to introduce the tube, in giving an injection.

Subsequent to this period his medical friends were of opinion that no more could be done than to palliate, and procure sleep. He was directed to have recourse to opiates, and was at times, by these means, much refreshed and comforted. He latterly became exceedingly emaciated, from the ill state of his health, added to close application to the duties

* Extracted from the MS. in Mr. HEAVISIDE'S museum, where the diseased parts are preserved.

of his profession, which, notwithstanding pain and sickness, he never willingly neglected. Before he died, his legs became dropsical, and swelled very much.

On examining the body, the opinion formed of the disorder proved to be correct. The small intestines were healthy; the cœcum, and beginning of the colon, much inflated, but not inflamed. The transverse arch of the colon was also much inflated, but it had likewise the appearance of inflammation. The distended part of the colon terminated opposite the lower end of the left kidney, where there was an annular stricture of the gut. At this part the contracted intestine had the feel of firm flesh, and had evidently suffered previous inflammation. The diseased intestine being slit up, was internally inflamed, and superficially ulcerated, particularly towards the seat of the stricture. At the stricture the passage was very small, winding irregularly through an inch and a half of compact but ulcerated substance. Below this, where the colon passes over the psoas and iliac vessels, it was in its natural state. The rectum had suffered much from disease, and, for a finger's length to within two inches of the anus, was contracted almost to the size of a goose-quill, and of a livid colour. The lower two inches of the rectum were not so much contracted, but of the same livid colour. The inner surface of this part of the gut was traversed by many short flattened bands, somewhat resembling the fasciculated structure within the heart. This latter appearance was the effect, no doubt, of inflammation, at the time when the abscess formed, near the side of the gut.

CASE 33.

Scirrhus Stricture in the Rectum, with fistulous Openings.

Aug. 3. 1821. I was requested to see a poor man aged 56, who, a year and a half before had

suffered from distressing irritation in the rectum, which, partly neglected, and partly misunderstood, had been allowed to go on for several months, although medicines had been directed. He had been some months an out-patient at an hospital, where, his case being at length discovered to be stricture in the rectum, he had bougies regularly introduced, till the pain induced becoming insupportable, they were laid aside. Subsequently very ill, he was no longer able to attend.

March, 1821. An abscess with much inflammation formed, in the perineum and scrotum, which became diseased, and several other abscesses took place in succession, followed by sinuses, through which the fæces flowed out. When I visited him his state was truly distressing. He said the pains from his disease were mostly acute, and lancinating; sometimes almost intolerable. I had intended to examine the bowel, but on exposing the perineum, and touching it lightly with the finger, a spasm, so painful as to excite the most piteous groans, came suddenly upon the bowel, and a quantity of fluid fæces was expelled involuntarily from the fistulous openings. This poor man observed, that with no command over the action of his bowels, he had now constant desire to pass his water, and had in fact neither ease, appetite, nor sleep.

His bowels being regular, and naturally disposed to laxity, he was recommended opiates and anodynes, the use of which medicines he was desired to regulate according to circumstances; these means, in addition to pecuniary relief, the poor man was partly aware included all that could be proposed for the alleviation of his misery.

CHAPTER II.

ON ULCERATION OF THE INTERNAL SURFACE OF
THE INTESTINE.

SECT. I.

On the Causes of the Disease.

86. THE variety of effects produced by sympathetic complaints, and the irregularity of symptoms, frequently make it difficult to ascertain the causes of disease. We know that inflammation so generally precedes ulceration, that we are naturally led to conclude these two actions necessarily connected together, as cause and effect, and that the latter must be invariably preceded by the former. The certainty of this point, however, may, I think, be doubted.

87. In some late researches into the minute appearances of disease in the bones*, I have unquestionably detected absorption, or, in other words, ulceration, unconnected with any character of preceding inflammation; and in the dissection of those who have died from disease in the alimentary canal, I have in various instances found so little trace of inflammatory action around spots of apparently recent ulceration, that I cannot help doubting whether, under some circumstances, irritation in the bowels may not establish a degree of excitement sufficient to induce ulceration, without any distinct appearance of inflammatory action.

* Published in the Transactions of the Medico-Chirurgical Society.

88. In considering the occasional causes of irritation in the bowels, it has often appeared to me that the functions of the liver, and consequently the properties of the bile, are very much influenced by external circumstances; and that those who are but little exposed to the inclemency of weather, are nevertheless liable to suffer from an acrimony in the bilious secretion, as a consequence of common cold, an effect quite distinct from the increased quantity of thin mucous fluid excreted from the bowels in dysenteric diarrhœa; the first exciting a distressing sense of heat, and even excoriation about the anus; the second passing off without any such irritation, although they are both occasionally attended with an irksome sense of weight, and bearing down in the rectum. These observations, which I have very repeatedly had the opportunity of making when abroad with the army, have lately been set in a correct though conspicuous point of view, in a work of unusual merit and practical value, by Dr. JOHNSON, on the Diseases of Tropical Climates.

89. The manner in which ulceration may be induced by acrimonious contents in the lower bowels, is shewn in one of the annexed cases.* Such ulceration, extending rapidly, may in a constitution otherwise unhealthy, induce sloughing of the cellular membrane, and eventually fatal disease, affecting all the coats of the intestine.†

90. A very painfully irritable state of the rectum is sometimes caused by disease in some neighbouring part, particularly the womb. Irritation from this cause will require peculiar treatment.

91. The functions of the alimentary canal may be permanently deranged, marking a sort of intermediate state between health and disease, if possible, more important than disease itself; for if treated with that early attention its consequence

* Case 44.

† Case 46.

demands, it almost invariably admits of being set right, while many of the eventual diseases of these viscera are of very uncertain event, under the best treatment.

92. When the intestines possess a permanent excess of irritability, they will require attentive and patient management. Extremely prone to constant relaxation, and frequently to spasm also, there will be great difficulty in bringing them back to the quiet steady performance of their healthy functions. This intermediate state I have so frequently seen pave the way to actual disease, that I am persuaded there are very few diseases of the bowels that are not occasionally brought on by its continued influence. *

93. It is occasionally matter of extreme difficulty to distinguish between cause and effect, in disorders of the bowels. This appears to me particularly the case where peculiar modifications of coagulable lymph, or albuminous matter, are effused into the cavity of the intestines. These appearances have generally been regarded as the result of inflammation; but several cases that have fallen under my observation, in which such effusion was attended with little or no pain, have led me to think chronic irritation in the bowels will sometimes give rise to this appearance; and that the effused lymph becomes, when coagulated, an additional source of local irritation and distress.† This was rendered more than probable in one case, where the affection situated low down, the patient was himself led to this conclusion, by his own feelings; and soon discovered, to his comfort, that by injecting warm water into the bowel, he had the means of immediate relief always at hand. This case, however, from some peculiar sympathies it exhibited with the neck of the bladder, has been recently brought

* Cases 34 and 35.

† Case 44.

forward, in illustration of the diseases of the urinary organs. *

94. In certain states of constitution the fluid thus excreted into the bowels, under the influence either of extreme irritation, or inflammatory excitement, is nearly pure coagulable lymph; occasionally producing the very peculiar appearances noticed by me in one instance †; and that such matters are actually excreted by the fine arteries upon the villous coat of the bowels, I have proved, by injecting the intestine when subject to this affection, thus contrasting the white masses of filmy coagulable lymph, loosely attached to the bright, injected villous surface of the gut. ‡

95. It seems probable that this state of permanently increased irritability, and the particular complaints to which it gives rise, is frequently allied to a local scorbutic diathesis; it is of importance to determine this point correctly, for if there is such tendency, nothing is more formidable in its ultimate results, nor any thing more easily removed, by early and proper attention. This opinion is rendered probable by the nature and tendency of the symptoms, which, during life, I have frequently watched and considered; but is especially confirmed by the appearance after death, and particularly by the rapidity with which putrefaction sometimes takes place. The latter circumstance is well illustrated by an observation made by Dr. HUXHAM, who mentions a disease in the colon, which appears to me to have been the consequence of continued inattention to diet on the one hand, and continued neglect of medical advice on the other. The patient was of a bilious and scorbutic habit, subject to flatulence and cholic pains. These appear to have been unattended to, and he subsequently had tenesmus, and frequent bilious, purulent

* Pract. Treatise on Diseases of the Urine, &c. (Case 71.)

† Case 13.

‡ Case 36.

and foetid stools, occasionally with blood; arising from the neglect of the former admonitory disorders. The latter complaints, as might be expected, were not to be removed. His appetite unsteady, the action of his bowels always uneven, he languished out only two years of misery, having taken a great variety of medicines in vain, nothing but laudanum affording him even temporary relief. On examining the parts after death, the ileum was found in one part inflamed from irritation, while the colon was in a gangrenous state, and the internal surface of the rectum as black as ink, from complete mortification. The head of the colon had formed, through the medium of adhesion, an ulcerated opening into the rectum, by which most of the contents of the bowels were supposed latterly to have passed. But, although the patient had been troubled with a looseness before his death, the greater part of the colon was stuffed up with indurated fæces; the liquid parts of the fecal matter having passed directly into the rectum through the ulcerated orifice, while the more solid parts were retained in the colon. * Another instance, somewhat similar, will be noticed presently. (125.)

96. Inflammation alone may produce ulceration in the villous membrane of the bowels, but I have most commonly observed this change occur where inflammatory action has evidently operated in connection with irritation, from the presence of acrimonious matter in the intestines. In one instance I have found irritation from the long-continued passage of the urine by a fistulous opening in the rectum, in a case of diseased urethra and prostate gland, produce ulceration of the bowel, inducing a very irksome and distressing tenesmus, from which the patient could never be effectually relieved.

* Phil. Trans. vol. xxxvii.

97. External violence by laceration, or contusion, may sometimes induce ulceration of the bowels, but provided the injury has been moderate in degree, and that the intestine is not absolutely torn through, the internal surface may separate by sloughing or not, and the patient in either case do perfectly well.*

SECT. II.

On the Symptoms and Appearances of the Disease.

98. ULCERATION in the bowels will, in its commencement, generally be connected with pain in some part of the abdominal region, usually acute, and more or less intense, dependent on the turn of constitution favouring either phlegmonous or erysipelatous action.

99. Obstinate costiveness, extreme tenderness, or severe pain in the belly, heat of skin, thirst, and white tongue, hard and quick pulse, will sometimes lead to a suspicion of acute inflammation, requiring diligent attention, and the most active treatment; while in other cases, with heat of skin, thirst, foul tongue, and local pain, the pulse, although quickened, will not be remarkably hard.

100. Inflammatory spasm, however affecting the bowels, particularly the colon, may be occasionally attended with a very slow pulse, under which, if we wait for a quickened circulation, it may cost the patient his life.

May 17. 1823. I was suddenly called, with Mr. DAWSON, to a young gentleman of spare habit, writhing and screaming in the most intolerable pain, under the right short ribs, and extending thence across the belly. The pain was constant, but its severity variable. I took away $\frac{3}{4}$ xvi. of blood, which on cooling became cupped. The pulse before at 60, now rose to 80; and the skin

* Cases 41 and 49.

previously pale and shrunk, became relaxed and coloured. Pressure on the belly was extremely painful, apparently by aggravating spasm; it was not the general or diffused tenderness of peritoneal inflammation. An aperient mixture, in small quantities, at short intervals, at length passed the bowels, relieved the symptoms by producing several motions, and by the next day he was recovered, though weak.

101. The progress of peritoneal inflammation is sometimes excessively rapid. *July 3. 1821*, I was requested by Mr. BARROW to give my opinion upon the examination of the body of a little girl, aged seven years; well on the morning of the preceding day. She first complained of pain and tenderness about the belly, was sick and vomited, became extremely feverish, grew hourly worse, and died the same evening. On opening the body, the rugæ of the stomach were faintly tinged internally, with florid red lines, perhaps from the straining to vomit. The intestines externally were at various points inflamed, but on cutting into these parts of the canal, and scraping away the stiff tenacious matter within the cavity, the mucous membrane appeared white and healthy. In the abdomen were several ounces of purulent fluid, and flocculent lymph; and on one part of the peritoneal surface was an inflammatory spot, the size of a crown piece. A second child in the same family, affected the following day with tender abdomen, rapid pulse, and drowsiness, bled promptly and freely from the jugular vein, purged, and blistered on the abdomen, was towards evening much relieved, and the next day quite well.

102. Where, consequent to some of the above signs of inflammation, ulceration follows, it will be either circumscribed or diffused. When this process is circumscribed, I think the danger greatest, for in these cases principally I have found the ulcer penetrate through the muscular and external coats

of the intestine, an event almost uniformly fatal. Where, on the other hand, the ulceration is diffused over a surface of considerable extent, the intensity of the preceding inflammation may be presumed to have been less, at least I have in various instances found a great extent of bowel thus affected, without its having penetrated beyond the internal or mucous membrane of the gut.

103. Should ulceration make its way quickly through all the coats of the bowel, the escape of its contents into the general cavity of the abdomen immediately follows; an event productive of the most distressing pain, and extreme tenderness of the belly, with increase of fever, from peritoneal inflammation, which, under these circumstances, is, I believe, invariably fatal.

104. In some cases, inflammation affects all the coats of the bowel at the same time, and adhesion becomes the means of saving the life of the patient.

105. When effusion happens in this way, coagulable lymph is poured out upon the bowel, producing adhesion, either to the external parietes of the abdomen, or, perhaps, to some other part of the intestinal tube, by which medium the ulcerative action making its way through the mass of lymph, produces an outlet for the contained matters through the external integuments, or effects a passage out of one into another part of the intestinal canal; in either case preventing the mischief that would arise from the contents of the bowels escaping into the general cavity of the belly. Occasionally the adhesive process puts an entire stop to the further progress of mischief. The symptoms and appearances connected with this tendency are strongly illustrated by the 86th case, in the *Practical Observations in Surgery and Morbid Anatomy*.

106. Peritoneal inflammation, though ending favourably, may leave adhesions, to the permanent inconvenience and distress of the patient. In *Feb. 1822*, my opinion was desired, by Mr. BUR-

NETT, upon a person who had a fixed pain in one point of the abdomen, with occasional slight bilious symptoms, cough, nervous chills, and some degree of emaciation. Respiration free, pulse rather quick. The settled uneasiness on pressure, and the pain in coughing, sneezing, or quick motion, was confined to the space of a shilling, rather to the right of the linea alba, three inches below the point of the sternum. At rest he felt nothing. No heat, throbbing, or hardness in the part. On enquiry it appeared, that in *September* of the preceding year, he had had a severe attack of cholera, severe vomiting, purging, and great tenderness in the abdomen. The purging was soon succeeded by costiveness, and pain now referred to the groin, led to the detection of a small intestinal hernia; this reduced, the symptoms gave way, and he soon recovered; but from that time he had been subject to the fixed pain above mentioned. The opinion I gave was, that, in all probability adhesions had formed between some part of the bowels, and the peritoneum lining the anterior parietes of the abdomen, for which very little could be done. Finding the bowels confined, it was suggested that they should be constantly kept in even action, and that if at any time the pain and irritation became severe, it might be relieved by keeping a small blister open, upon the spot.

107. An instance, showing that the process of adhesion, though a salutary effort of nature, is not always to be depended upon, may be found in an interesting case, where it may be taken for granted there had been ulceration of the mucous membrane of the colon, although in examination after death no remaining trace of inflammation appeared. It is related by Dr. STOKER, in the *Transactions of the Irish College of Physicians*. In this instance, irritation from a perpetual load of contents had brought on ulceration; although the accidental

bursting of the weakest part of the over-distended bowel proved the immediate cause of death.

108. Provided the ulceration is merely superficial, every thing may go on favourably, and end well. The constitutional symptoms, under proper treatment, giving way, the ulcerated parts may become clean, and assume healthy action; suppuration be succeeded by cicatrization, and as the extent of exposed surface diminishes, the strength will increase, the constitutional sympathy evinced by the foul tongue, heat of skin, and disturbed pulse, will decrease, and at length entirely vanish.

109. Where, however, the extent even of superficial ulceration is very great, the efforts of the constitution on its own behalf, with every assistance that medicine can afford, will not always succeed. The number of stools may be diminished, the bowels instead of obstinately retaining all fæcal substances, may be regularly induced to render their proper and natural contents; while the morbid appearances in the motions diminish in proportion; in short, all the functions of the intestines may be brought round much nearer to a healthy state, without the disease being cured, or the slowly progressive emaciation being checked.*

110. A frequent symptom in advanced stages of extensive ulceration in the intestinal canal, and I consider a very unfavourable sign, is a peculiar affection of the nerves of the lower extremities, inducing stiffness, lameness, and eventually retraction of one or both limbs, reducing the patient at last to the necessity of using crutches. I have repeatedly, and especially in one instance, seen both limbs rendered useless by this complaint; in other cases only one limb has been thus affected. In one highly interesting case of this kind, severe pains in the course of the crural nerves, after some

* Case 47.

continuance, gave place to œdematous swelling in the affected limb.*

111. An extensive ulcer, in the lower part of the rectum however, by removing the inner membrane, exposes the cellular coat of the bowel to constant and excessive irritation, from the acrimony of bilious and other matters passed by stool; and the general result is a disposition to sloughing, and sometimes mortification. A constant heavy and dull, but still distressing pain, with perpetual disposition to diarrhœa, attends these complaints.†

112. The irritation from an ulcer or abscess, indirectly connected with the rectum, will sometimes induce the most obstinate confinement of bowels; most probably through the agency of spasm in some part of the canal, preventing the free transmission of their contents.‡

113. The preceding observations more immediately regard primary affections of the bowels; but it is of equal importance, in a practical point of view, to recollect that the intestinal canal is sometimes affected secondarily, under circumstances which nevertheless may concern the safety as well as comfort of the patient. Inflammation may come on, and abscess follow in some part of the abdomen, attended with fever, local tumour, and pain, where every thing will depend no less upon the watchfulness than the discernment of the practitioner.

114. The probability of matter having formed must be judged of by the diminished hardness of the pulse, and the decline of the other feverish symptoms; by the cool and relaxed skin, the decrease of local pain, and generally, also, by the occurrence of rigors, or chilliness. The favourable view here is the hope that the abscess may, through

* Practical Observations in Surgery and Morbid Anatomy, Case 77.

† Case 45.

‡ Case 101.

the medium of adhesion, attach itself to some part of the bowels, and in this way find an outlet consistent with the safety of the patient. In this event, the ulcerated opening in the bowel, abstractedly, is of no real importance; it merely allows the escape of matter, as long as necessary; when the abscess has contracted and closed, it readily heals up.

115. In one case of this description, for the particulars of which I am indebted to Mr. NORTH, a boy aged 11, in *March*, 1820, had been some time declining in health and appetite, his nights restless and feverish. On examination a diffused tumour was found, above the right groin; acutely painful on the least motion, with inability to use the right leg. His appearance hectic, it was presumed matter was forming in some part of the abdomen; although the friends were sure it was some disease in the knee. The bowels attended to, the swelling was covered with a mercurial plaster; and opiates at night, and bark with soda during the day, were given. After five weeks there was no distinct feel, as of matter, to be perceived; but the hectic symptoms increasing, the case threatened soon to end fatally. About the middle of *April*, matter tinged with blood was observed in his motions, and this discharge continued more or less freely, for three weeks, and then finally disappeared. In three months the health was perfectly re-established, and up to *Oct.* 1823, he had remained well. Dr. HOOPER had been consulted at the commencement of this child's illness, and remarked to the friends that the most favourable, though by no means most probable, termination of the case, would be a rupture of the abscess into the intestines.

116. In another instance, Mr. NORTH was desired, *Aug.* 4. 1820, to see a gentleman, who several weeks before had fallen from the roof of the Exeter mail; severely injuring the right side of

the abdomen, where great pain followed. When Mr. N. first saw him, he was in excruciating pain; on examining the right side of the abdomen a diffused tumour to some extent was perceived, under the parietes. He fainted repeatedly, and a cold sweat was sufficiently descriptive of his suffering. Leeches and fomentations were applied to the part, and a purgative medicine given. After a few days, the symptoms little altered, Mr. HEAVISIDE was consulted, who recommended the continuance of the plan previously adopted. In a fortnight after this, pus with blood appeared in the stools, and so continued to discharge many days, when the appearance ceased. Slight pain, tenderness, and a degree of lameness in the right leg remained for more than a year afterward, although the swelling gradually dispersed.

One instance of this kind, the progress of which I had an opportunity of watching, will be found with the cases.*

117. The appearance of blood in the stools, independent of piles, has been held a criterion of ulceration in the bowels. Upon this evidence, however, I place no reliance. It is true, that in dysenteric complaints, when the urgency and straining to pass a motion is perpetual or violent, blood is frequently voided, and it is reasonable to believe it proceeds from the ulcerated parts of the bowels, where these are low down; but ulceration frequently exists in the superior parts of the great intestine, where these irksome symptoms can have little influence; and this circumstance may explain why in some cases the stools have never been tinged with blood, notwithstanding ulceration of the mucous membrane of the bowels has been found after death.

In point of fact, the motions being free from

* Case 40.

blood is no proof that the bowels are free from ulceration; neither does the presence of blood in the stools prove ulceration to have taken place.

118. I have in several instances attended persons attacked with severe pains and relaxation in the bowels, the evacuations having more or less the appearance of pure blood; in two of these cases the same kind of matter was repeatedly ejected by vomiting. The attack has continued some time, the fluid passed sometimes resembling thick, dark, bilious stools, at others appearing like grumous unhealthy blood. In these complaints, the fit of griping pain has occurred after the manner of spasm, being presently succeeded by a free evacuation, from which the patient has experienced temporary relief. The quantity of this fluid matter passed at one time has been frequently equal to one, two, or even three pints.

119. The real nature of this disorder has been hitherto but little investigated. In one case, however, in which a second attack terminated fatally, with permission of the physician who had attended, I availed myself of the opportunity for ascertaining the seat and cause of the hæmorrhage, and of the disease also. The bleeding had taken place from the capillary or exhalent arteries upon the internal surface of the great intestine, and although it was evident that every part of the bowel had been a bleeding surface, no part had suffered ulceration, nor was any part inflamed, though the whole was very red.*

On comparing the symptoms that attended in the above case with what I had previously seen of a similar kind, I was convinced that this disorder is a consequence of a particular stage of the scorbutic diathesis; although it is not always attended with the spongy state of gums, which is one of the

* Practical Observations in Surgery, &c., Case 83.

strongest general characters of that disease. Taking it upon this ground, I have since been enabled to succeed in curing the complaint. The opinion that the fluid usually voided in this disorder is principally blood, was that of an eminent and excellent professor of the Edinburgh school.*

120. In *Aug.* 1822, I examined, in presence of Dr. JAMES, the body of a youth, in the house painting line, whose complaints had been supposed to proceed from lead. He had had pain in the loins, especially the right, for several weeks; bowels easily acted upon, and stools always containing blood. He complained of pain in the abdomen; which was neither tense nor tender. Pulse remarkably slow and quiet; and at last, intermitting. In this case the intestine ileum was particularly relaxed in texture, and as dark coloured as if mortifying; loaded with dark purple vessels, yet not inflamed. Opening this part, and scraping the internal coat, it gave out at every pore a thin mucous fluid evenly tinged with unhealthy looking blood. The pain in the loins was explained by the state of the right kidney, which had become distended with urine, in consequence of a small, soft, clay-coloured calculus confined in the ureter.

121. In another case, in which the colon and rectum were thus affected, I found in the cells of the colon a striking illustration of the high excitability sometimes possessed during life, by these recesses of the alimentary canal; demonstrating the principle upon which certain indigestible substances, taken into the stomach, occasionally induce the most unpleasant, and even distressing effects†; and at the same time pointing out the decided line of conduct that ought to be pursued, in the direction of such medicines as shall be sure to succeed in clearing out these portions of the intes-

* Dr. HOME, Clinical Experiments.

† Cases 11 and 57.

tines, and such as at the same time shall not excite violent or drastic action, to the unnecessary injury of parts already too irritable.

122. M. PORTAL has published upon this subject an excellent memoir, which I have lately read with much pleasure and profit. He states that the black matter evacuated is not bile, but blood, having no trace of bitterness, not dissolving like bile in cold water, nor giving any green colour to the water; but that it is pure blood, which in the bodies of those examined after death may be seen to transude from the blood-vessels of the stomach, and small, not large intestines. His words are “dans les intestins grêles et non gros.” This exception, however, is an error that any one might readily have fallen into, arising merely from his having seen the disease affect the small, but not the large intestines.

123. This disease is considered to be the consequence of a local plethora of liver, spleen, or some other viscus, creating plethora in the corresponding arteries, and exudation in consequence; the black colour of the arterial blood arising from its meeting with carbonic acid gas in the general canal. The cramp and spasm of the stomach and bowels, sometimes caused by violent affections of mind, are considered capable of giving rise to this complaint. It is admitted sometimes to depend on the scorbutic diathesis, being then produced either by the overloaded state of the liver and spleen, or by the altered condition of the blood, peculiar to scurvy.

When produced by plethora, bleeding by leeches from the hæmorrhoidal veins; in other cases the use of acids, wine, and tonics are recommended.*

124. Regarding the history and treatment of malæna, M. RODAMEL has related a highly instructive case, in which blood first passed from the

* Memoirs de la Société Médicale d'Emulation, tom.ii.

stomach by vomiting, and then downwards into the bowels, creating increasing distention, constant distress, with fainting, irregular pulse, and cold sweats, the bowels obstinately refusing all impression from purging and injections; the mechanical irritation of the rectum, by the introduction of a large gum catheter its whole length, was followed by the evacuation of three large pots full of matter, and the patient to all appearance expiring, gradually revived, and eventually recovered.

The same thing happened a second time, and was relieved by the same means.

The disease was believed to be connected with the putrescent diathesis.*

125. A very interesting case has been given by Mr. HILL, which appears to me to have been originally a bleeding from the villous coat of the bowels, which, after a long course of severe and varied sufferings, proved fatal; but not till it had reduced the diseased viscera to that condition, that, at the time of death, nearly the whole of the rectum had actually mortified; the fragments of an extensive portion of the bowel, and the fæcal contents, being found loose in the cavity of the pelvis.†

The quantity of blood that has in some instances been thrown off from the stomach is astonishing. A case is recorded where the enormous quantity of twelve pounds and upwards were vomited up in the space of two hours, and the patient perfectly recovered.‡

126. The appearances that occur upon dissection in ulcerated bowels, will vary. In the early progress, the blush of increased vascularity will be more extensive, but as certain points of intense action become established, the excitement upon the intermediate space declines, till at length ulceration

* Mem. de la Soc. Med. d'Emulation, tom. vi.

† Edin. Med. Journ. vol. xii.

‡ Phil. Trans. vol. xxxvii.

takes place. When the cellular membrane is once exposed, it may fall into a sloughy state, from the debility incident to previous excess of action, or from the presence of acrimonious matters in the bowels, now brought into immediate contact with it. Should the constitutional health be good, this may not occur; healthy suppuration may take place, and the excitement being moderate, a granulating surface forms, soon beginning to heal over, and eventually covered with a cicatrix of a fine smooth texture. *Oct. 4. 1823.* In examining with Mr. HEAVISIDE, the body of a gentleman, who, after many years hard drinking, died from a blood-vessel in the lungs bursting into the cavity of the chest; I found the liver, stomach, and bowels, apparently healthy, except the head of the colon, which felt thickened. I therefore dissected this part out, secured its vessels, and the same evening injected it. In this operation scarcely any resistance was felt from the arteries; and on cutting open the bowel, I found this was owing to a broad band of ulceration by which the villous membrane surrounding the head of the colon and cavity of the cœcum was destroyed, the vessels upon the ulcerated surface allowing the injection to flow freely into the gut.

In the intestine ileum, near the colon, a few small ulcers were observed, but the most extensive ulceration was in the colon. In this case the surface of each ulcer was brilliantly coloured by the injection having escaped from the capillary arteries into the interstices of the cellular membrane; which membrane exhibited no power of producing granulations, nor yet any tendency to sloughing, although apparently ulceration must have existed some time. No particular sense of pain had been referred, during life, to this part, probably from a painful disease which existed elsewhere.*

* The preparation is in Mr. HEAVISIDE'S museum.

127. Where the parts heal, the new surface is not in all respects equal to the original structure. On the contrary, it is destitute of the power of absorption, one of the functions of the natural mucous membrane; it is also found to resemble other newly formed parts, in being more irritable than the original surface of the intestines. From these two circumstances are derived the only permanent inconveniences I know of, resulting from ulceration in the bowels, where the complaint ends favourably; and they generally escape observation, unless where the disease has been severe. Where, however, a large extent of intestine has been so affected, I have found that the diminished quantity of support derived to the system by absorption, and the constant tendency to diarrhœa from the extreme irritability, have arrested the progress of recovery after the ulcerated parts had healed, and have subsequently proved fatal, in spite of every effort that I could make to counteract their influence. A striking and singular demonstration of these interesting and curious facts has been already brought forward.*

SECT. III.

On the Treatment.

128. THE symptoms that lead to a suspicion of inflammatory action in the bowels, ought in every instance to be watched with the closest attention; for it frequently happens, that pains, at first occasional and spasmodic, will very quickly take on the more permanent and serious characters of inflammation.

129. The medical treatment of inflammation must be directed entirely by circumstances. (50)
The continued exhibition of mild aperients in di-

* Practical Observations in Surgery and Morbid Anatomy, Case 77.

vided doses, will, in these complaints, frequently operate well by passing through the bowels, although at first they may have been rejected by vomiting. The combination of the neutral salines with the infusion and tincture of senna, are, I think, in general less apt to produce sickness than castor-oil, but it will be often necessary to try a variety of medicines before any succeed. With a view to moderate arterial action, it may be also expedient to direct, at intervals, some of the saline diaphoretics. A large and gently laxative enema, if ordered to be carefully and slowly injected, will sometimes by its volume, as well as warmth, assist essentially in promoting salutary relaxation of the bowels.

130. If the patient be young, and the symptoms strongly marked, with much pain and local tenderness, the practitioner will require all his discernment in determining the moment for having recourse to the lancet and warm bath. The benefit to be derived from the former means is well known, and the powerful influence of the latter is sometimes very great. I recollect trying it once to the fullest extent, in the hospital of the 82d regiment. A boy had a most obstinate attack of inflammation on the lungs, resisting very large and repeated bleeding, blistering, and every other means usually employed. The oppression and severe pain in the chest remaining unabated, and the pulse failing so as to render the further abstraction of blood positively unsafe, I determined that at least he should not die of the disease, if I could help it; and therefore directed the hospital-serjeant to set him in a warm bath, and keep him there till he fainted away; then to lift him out, and lay him between warm blankets till he revived, when he was to be again immersed in the bath till he fainted a second time. He was directed to continue these successive operations until the boy felt relief in the chest. The ex-

periment succeeded completely ; after several immersions the complaint gave way, and the young man recovered perfectly.

131. A very essential, if not the most important point, consists in establishing a free and relaxed state of the bowels. Till this point is achieved, the patient cannot be considered safe ; but this once effected, and febrile action somewhat relieved, the case will, or at least ought to end well, with the assistance of proper saline or antimonial diaphoretics, and due attention to diet, which, during the season of convalescence, should be of the lightest possible description.

Where the evidence of inflammatory action is doubtful, and the affection is discovered on examination to be produced by disease in the neighbourhood, the object must be to sooth, quiet, and compose the part, by an anodyne treatment.*

132. Where the symptoms indicate a tendency to erysipelatous action, the abstraction of blood must be directed with caution, the dependence being rather upon diaphoretics and opiates in small doses, taking great care at the same time to ensure regular action of the bowels, by the occasional use of gentle aperients.

By these means, ill consequences may generally be prevented, the inflammation being subdued without allowing time for the establishment of serious mischief ; sometimes, however, it happens otherwise, and ulceration may then ensue.

133. It has been observed, that when ulceration is confined to the mucous membrane, the complaint may be frequently relieved and cured, provided the real nature of the case is known, and the treatment adapted to the state of constitution, as well as to the local affection. That ulceration, when it extends through all the coats of the bowel, must be

* Cases 37, 38, and 39.

almost invariably fatal, is proved by the appearances and symptoms in cases 78 and 79, in the Practical Observations in Surgery.

134. The probability of ulceration having made its way through all the coats of the intestine, must be calculated from the duration and degree of the early symptoms, contrasted with those that may subsequently arise, from a sudden attack of peritoneal inflammation, without any obvious external cause. Under such circumstances, every exertion should be made to keep down arterial action, by blood-letting general and local, and by every other means. The possibility of this event, in any case of ulcerated bowels, will point out the necessity for keeping a watchful eye upon the progress of the disease, without exciting unnecessary alarm in the minds of the family ; yet with care that the moment new symptoms arise, their probable importance may be so appreciated by the friends of the patient, as not to subject either the discernment or the conduct of the practitioner to unmerited censure.

135. Where there is reason to believe ulceration of the mucous membrane of the bowels has taken place, the most minute attention must be paid to diet, and to every circumstance that can, in any way, influence that curative process, the accomplishment of which rests with the powers of the constitution.

136. A principal object will be to prevent the formation of any acrimonious matter in the bowels, taking care to preserve an easy and regular transmission of their contents. We must observe with attention, through the pulse and tongue, the ever varying state of the system, and either raise it carefully when prone to depression, or cautiously moderate any tendency to excess of tone ; thus endeavouring to maintain that quietude of balance most conducive to eventual recovery.

137. These observations are the result of ex-

perience, and not of reading. I have constantly found that where ulceration in the bowels has once taken place, the least irregularity in diet, the most trifling derangement of stomach, will excite uneasiness or pain in the seat of the complaint, generally followed by a tendency to diarrhœa; and in those cases where, from the ulcer being low down, it could sometimes be partially seen, the nature and cause of these symptoms have been proved by the unfavourable change manifest in the appearance of the ulcerated surface.

In some instances, where the age and habit were favourable, the happy effects of attending to the above circumstances, aided by the influence of tonic medicines, have far exceeded my expectations.*

138. The indications to be held in view may be occasionally forwarded by the use of mild diaphoretics, but will generally be fulfilled most advantageously by the exhibition of light tonics, combined either with aromatics or opiates. In cases of this description, Dr. HOOPER is occasionally in the habit of directing various light combinations of steel; and in some instances that I have seen, with astonishing advantage. The effect of any of these means must of course be occasionally regulated either by castor-oil, or some other aperient.

139. When an ulcer is sufficiently low down to be within reach in an examination per anum, it has been supposed that the disposition of the diseased surface may be improved by the injection of astringent fluids into the rectum. Upon any treatment conducted on this principle, I should not place much reliance. Not that I have frequently found it fail, having little experience of the effect of local applications under these circumstances; but well knowing the habits and structure of all parts of the alimentary canal are very much the same, I am

* Case 50.

persuaded that the most useful, and in general the only successful, effort to remove or relieve the disease, must be made through the medium of the constitution ; taking care to prevent the occurrence of local irritation as already stated.

Where the ulceration has been confined to the sphincter of the anus, I have occasionally derived advantage from the application of a solution of the *argentum nitratum*. *

140. When an ulcer in the bowels proceeds from an abscess in the neighbourhood, the treatment must be directed to the abscess alone, the ulcerated opening from it being of no comparative importance. In this case, the first attention must be paid to the employment of all the usual modes of depletion, while there is any chance of preventing the more serious consequences of inflammation ; when these fail, fomentations and poultice will generally succeed in bringing the abscess forward ; and when the contents have made their way into the bowels, the discharge of blood and pus will sufficiently explain the state of the case, and according to circumstances, indicate the propriety of having recourse to tonic medicines, and strengthening diet, or the contrary.

141. The occurrence of large discharges, apparently of blood from the bowels, is generally unconnected with ulceration ; and as this particular disorder of the intestinal canal has been but little adverted to, though always serious, and often fatal, I may be excused in making some few practical remarks regarding this kind of hæmorrhage.

142. In *July* 1811. I visited a gentleman, who, towards the decline of life, was attacked with this disorder. Owing to various circumstances, he had long experienced a declension both in health and spirits ; when he was suddenly seized with a severe

* Cases 44. and 48.

vomiting and purging, which, from the appearance of the stools, seemed at first to resemble cholera morbus. There were frequent spasmodic pains in the bowels, a small weak pulse, and extreme prostration of strength. The excessive debility, and the severity of the pains were such, that when the spasms came on, the accumulated contents of the rectum passed at once away, without any power of restraint. On the third day the vomiting declined, but the stools, although less copious, were now evidently blood, little, if it all, changed by mixture with other fluids. Mr. HEAVISIDE, who was the surgeon in attendance, had little hope of his recovery; but assisted by medicine, and a light nutritious diet, he was eventually, though very slowly, restored to health.

The next case of which I had the opportunity of seeing not only the progress, but also the termination, I have formerly adverted to (119.); it was one that I could only view in the light of a scorbutic complaint. Upon several accounts this case excited my particular attention.

143. In *January*, 1817, I had again an opportunity of seeing the disease, being consulted by a man aged forty, who for several months had passed, almost daily, blood by the rectum, without my being able to trace any disease in the anus, or in the bowel above it. He some days voided a dessert spoonful, at others half a pint. It generally passed alone, but sometimes with fæces. This case was marked by spongy, but not bleeding gums; but it agreed with the others in extreme constitutional debility, and excessive depression of spirits, and might be clearly traced to a preceding course of low, poor, salted diet. I directed him to eat fresh food and vegetables, and ordered him to take also the juice of four lemons every day, in lemonade, or otherwise. In a fortnight his complaints were better, but the plan was now changed

for astringents. The sulphuric acid, tincture of kino, rectified spirit of turpentine, and various aluminous mixtures, were tried in succession, but without success; they produced severe spasmodic pains, costiveness, and sickness at stomach, without in the least checking the hæmorrhage. These medicines laid aside, he was again ordered the lemon-juice, with the addition of bark and aromatics, the bowels being kept in a state of regularity by castor-oil. Under this treatment his complaints gave way, and by two months' perseverance he found himself entirely recovered; his spirits and strength being essentially improved, and the appearance of blood in his stools quite removed.

144. Where ulcers in the bowels have healed, I have observed (127.) that the new surface is neither capable of absorbing nor of bearing irritation, so well as the original structure. The first of these peculiarities is only felt as an inconvenience where the ulceration has been extensive, but the second is often extremely distressing. The least change in diet, the least degree of cold, will bring on a sudden attack of looseness, with griping pains in the bowels, subjecting the patient to weakness, and temporary exhaustion.

145. Under these circumstances I have found no means of relief comparable to opium, judiciously administered. I say judiciously, because its power of regulating this particular disposition is entirely dependant upon its proper direction, and careful management; if carelessly exhibited, it will presently become so necessary to the patient, that it cannot be laid aside, and it may then be doubted whether the remedy may not prove worse than the disease.

146. Attention should also be paid to the clothing. The habit of constantly wearing flannel next the skin cannot be too strongly recommended,

especially in this variable climate. It tends to encourage the insensible perspiration, and renders the patient infinitely less liable to cold from sudden alteration of temperature.

CASE 34.

Deranged Action of Bowels.

Dec. 21. 1820. A gentleman called to consult me, whose complaints related to the habitual state of his bowels, discomposed by the slightest cause, generally too relaxed, sometimes violently so; with occasional pain, but more frequently uneasiness, and flatulent tension. He said he had been in the East Indies, where he had liver complaints, and used a great deal of mercury, which ran so violently off by the bowels, that he had never been able to bear mercurial medicines since. Two things he observed he was quite sure of; the one, that he had no complaint now that related to the liver; the other, that there was no affection in the way of stricture in the rectum; for that a surgeon of eminence, by whom he had been attended several months, had passed a bougie to satisfy his mind upon this point.

I told him that medicine might render him very material assistance, but that a careful attention to his diet and general habits might do even more than medicine; that there was little doubt on my mind that he might in time perfectly recover his health, but that experience had taught me that the treatment of cases of this nature required more patience and perseverance than many persons possessed, and that for this reason alone they were frequently deemed incurable.

I thought it right to direct him two or three grains of the pil. hydrarg. to take at night, and a very gentle aperient the following morning, as a preliminary measure, requesting to see him again in a few days.

Upon his second visit he acquainted me, that although he had felt a dread of the pill, he had taken it, and, as I had previously assured him, he had found it operate very mildly. I told him, the object must now be to attend constantly to his bowels, observing so to regulate his diet, as to avoid creating disturbance in the bowels, and taking at the same time such medicines as, by imperceptible degrees, might operate, by restoring them to their original tone and strength; for that in proportion as their natural powers increased, irritability, and the symptoms arising from it, would diminish, and at last disappear.

Understanding he intended returning into the country, I prescribed for him a light tonic, to be taken every morning; pointing out this as the first step towards his improvement.

CASE 35.

Deranged Action of Bowels.

Dec. 23. 1820. I was consulted by a middle-aged gentleman, for a complaint that was productive of constant vexation and distress. A continual tendency to diarrhoea, much aggravated by taking any acid, fresh fruit, or other things that were apt to disagree with him. Three years since, in India, he had liver complaints, for which he used quantities of mercury, and dispersed an abscess which it was expected would break. The mercurial course appeared to him to have altogether unsettled the tone and functions of the alimentary canal; which from that time had always been in a state of excessive irritability, and generally in excessive action also. I remarked, that much would depend on his carefully avoiding those things, that by experience he knew would disagree with him; to which he replied, it was difficult to resist temptation, for that it was only a day or two since he had been made very ill by eating

toasted cheese in ale, of which he was excessively fond. He said he had tried bitters and astringents without benefit; and was anxious to know my opinion whether there was ulceration of the mucous coat of the bowels, or any other organic disease.

He observed, that eighteen months since, he had consulted a surgeon of high celebrity, who had examined the rectum by the finger, told him there was an ulcer in the bowel, and even made a drawing for him upon paper, to shew him its exact figure, directing a lotion to be injected over the part. Mr. WHITE, of Bath, had since examined him, and assured him he did not believe an ulcer existed then, whatever there might have been before; and that, as to stricture, he passed a bougie eleven or twelve inches without finding any.

He complained that he was almost constantly teased to pass motions, especially in the morning; but that by washing out the rectum with warm milk and water, he generally removed the uneasiness; and might pass a quiet day, if at home. But that if, from being absent at a friend's house, he was prevented using his apparatus, the urgency of the tenesmus increased, exposing him to much distress and misery. The discharges were rarely bilious, generally a frothy mucus; never bloody, except now and then to a trifling degree, from severe straining. On examination, I found the mucous membrane of the gut relaxed, and thrown into folds; with a tenderness just perceptible, towards the prostate gland.

The opinion I gave was, that I had known, in more than one instance, all his present symptoms arise from diarrhoea, where there was no proof of ulceration, nor in fact of any other organic disease, for the patients recovered perfectly; and that I, therefore, thought he had no good ground for his suspicions, his complaints being rather connected

with function than structure. They were, however, no less important on that account, for without making large concessions to them, particularly in what related to diet and management, and that for several years to come, I was very sure, from my knowledge of these complaints, he would never get rid of them; although, on the other hand, if he chose to live by rule, and avail himself of the assistance of medicine, when it might be capable of benefiting him, I was equally certain that by degrees his complaints might be removed, and his health perfectly restored.

CASE 36.

Irritable Bowels; with Effusion of coagulable Lymph, into the Canal.

Jan. 13. 1823. I had the opportunity of examining the body of a little boy, aged six years, upon whose complaints Mr. BARROW had been consulted, a few hours previous to his decease. He was said to have been attacked, the day before, with relaxation of bowels, without material pain. Always subject to "tender and delicate bowels," ever prone to relaxation. When the last attack of diarrhoea came on, the motions were frequent, but were said to be tolerably natural in appearance; though the mother confessed they frequently contained whitish mucous matter, and latterly a little blood. Mr. NICOLSON saw him seven hours before death, and found him sensible, quiet, perfectly free from any pain, stone cold, and without the least distinct pulse, at the wrist, or elsewhere. He had always been a weak, delicate child, but was still active, and fond of play, and running about.

The small intestine jejunum, was in several parts thickened, and of a yellowish or cream colour, and pulpy soft feel. The contained fæcal matter pul-taceous, and of a healthy, bilious appearance. The affected part of the bowel I removed, and the same

evening injected, opened, and examined. On cutting open the intestine longitudinally, and washing it under water, I found it contained two different kinds of matter; one excrementitious, bilious, easily distinguished, and as easily washed away; the other a whitish flocculent coagulable matter, every where adherent to the finely injected surface of the villous coat of the bowel. This coagulable matter had been most copiously effused within those parts of the intestine that had externally been observed to be pulpy and thickened in their coats. It appeared that the immersion in hot water, preparatory to its being injected, had rendered the coagulation of this effused matter more perfect, and more obvious. I for a moment doubted whether the size, uncoloured by the vermilion, might not, by escaping from the vessels, have been concerned in this appearance, but this was impossible, as hot water in which the preparation was washed, would reduce jelly to a fluid, and coagulate albuminous matters. The villous membrane was extremely vascular, but without any trace of ulceration. The other viscera were sound.

The emaciation and disease appeared to have consisted in the frequent tendency to effusion of the above coagulable matter into the bowels, reducing the system eventually to the low state of exhaustion, in which the child was found, previous to his death.*

CASE 37.

Scirrhus Uterus, simulating deranged Bowels.

Mrs. CHIDLOW, an elderly woman, consulted Mr. SPILSBURY regarding a complaint to which she was very subject. Her disorder was a bearing

* Several specimens from this preparation are put up in Mr. HEAVISIDE's museum; one I presented to the museum of the Royal College of Surgeons; and one is deposited in Mr. BROOKES's Museum.

down, and great pain in her back and loins, restlessness, want of appetite, great irritability of stomach, and prostration of strength. The pulse was quick, and small. Pressure on the abdomen gave no pain. Occasionally an irritable diarrhœa came on; at other times she was constipated with urgent desire to evacuate. Puzzled as to the immediate seat of disease, he examined the rectum, and found the uterus projecting and enlarged, with its fundus of a scirrhus stony hardness.

Some leeches were applied to her back; and the alimentary canal acted upon by occasional laxatives, and clysters. By attention to these means she was made comfortable in her attacks, and allowed a longer respite from invasion.

CASE 38.

Irritable Rectum, from diseased Womb.

A POOR woman, aged 42, requested assistance from the Infirmary, Nov. 7. 1820. She dated the commencement of her illness from her last lying-in, five years before. She was, on that occasion, attended by a person sent from a public charity, who neglected her both in and after her labour. Exhausted with the fatigue of her pains, she was left previous to the separation of the placenta, and falling asleep for half an hour, awoke, cold, and shivering, as if in the most violent ague. She was, however, laid under warm blankets, became warm, and sweated profusely. For several days she was unable to move in bed, from the tender and extremely painful state of the abdomen. She had also feverish heat, thirst, and several nights delirium. Although, after the first week, (being totally unattended,) she endeavoured to leave her bed, she felt so extremely sore about the stomach as to be scarcely able to bear the bed-clothes; and in the sixth week, in the attempt to go to church, she fainted away, and was unable to get out of the

house. As to her medical treatment, she said she had only once been ordered medicine, and that was some castor-oil; her medical attendant paid her only three visits in the first fortnight, and then left her altogether. Notwithstanding these difficulties, she nursed and suckled her infant.

From this period she was subject, particularly in cold weather, to sudden and severe rigors, with cold sweats, followed by a feverish paroxysm, head-ache, heat of skin, and thirst. The violent shaking usually ceased on getting into a warm bed; but she generally remained cold after this for an hour or two. These attacks would return sometimes twice in the day, and sometimes only once in a fortnight; they always began with a sense of cold in the region of the womb; thence appearing to spread over the whole body.

About a year after her confinement, in addition to the above complaints, she took cold, and soon after this felt a sensation as of strings passing up from the navel to the chest, drawn tight by the motions of respiration. Within the last six months she had felt as if these strings were drawn tighter than before; several of them produced much distress, drawing or pulling from the navel down to the hip, and upwards to the chest, whenever she coughed. At these points she sometimes felt extremely sore and tender, particularly when so unfortunate as to have cough or cold.

In *May*, 1820, she experienced symptoms of approaching disease in the womb, severe pains at the loins, uneasiness in the thighs and hips, sense of swelling, a constant bearing down in the region of the womb, and deficient menstruation. About this period, also, she first observed that the passage of the fæces along the bowel for some distance above the anus gave pain. She was then in the country for her health, but some weeks after, returning to town, a diarrhœa came on, which, although it prevented the pain incident to confined

stools, incurred a degree of tenesmus nearly as bad. The motions were thin, mucous, and tinged with blood, neither offensive, nor in the least degree bilious. Upon her recovery from the looseness, the uneasy and painful state of the bowel seemed to be somewhat relieved.

In *November* she observed that she still felt the uneasy sensations in her inside, as of strings or cords, two or three of which felt as if attached to the left groin, extending from the navel. She uniformly found them most troublesome when loose and undressed in bed, the pressure of the stays appearing to restrain and support the abdomen, and prevent them from pulling.

By examination, the womb was felt to be considerably enlarged, and very irritable. The rectum in its structure was sound: but the mucous membrane, for as far as the finger would reach, was extremely tender and irritable, especially on its anterior part.

With regard to treatment, the peculiar febrile paroxysms to which she was subject were found to be most effectually relieved by full doses of the compound powder of ipecacuan.; a plan which, under some modification, appeared to be most suitable to the alleviation of her uterine complaints. The irritable state of the rectum, when particularly troublesome, was very much relieved and composed, by the occasional use of an anodyne injection, consisting of half a pint of warm barley-water, or thin gruel, with thirty drops of tincture of opium. Sometimes, although rarely, I had directed a larger quantity of laudanum; but it was apt to leave confinement, followed by subsequent increase of irritation.

May, 1823. I heard of this person's death, although from her having been far removed into the country, there was no opportunity to examine the body.

CASE 39.

Irritable Rectum from diseased Womb.

Nov. 1. 1820. I was requested to see a female, aged 55, who for some years had been distressed with piles, which occasionally bled freely; they were now rarely troublesome. For the last three months she had been afflicted with severe pains in the loins, which, in their progress, settled down into the left hip and thigh, where they became intense, and constant. These complaints had been followed by tenderness and soreness about the anus; with occasional pain and frequency in making water. The most severe pain occurred in passing a motion, particularly if the fæces were at all hard. This pain was not in the anus, but in the bowel, some distance above.

She observed, she had been attended by a medical gentleman, who, upon hearing of a difficulty and pain in her evacuations, had at once decided there was a stricture, to remove which he had passed up a large-sized bougie, a procedure which threw her into such an agony of pain, that she was sure she had never been so well since.

On examination, several small flaccid tumors were found at the verge of the anus, the mucous membrane within the bowel, and the general structure of the intestine were apparently sound, but so irritable, that the lightest motion of the finger over any part of the surface, threw the whole frame into tremor and agitation. This irritable condition of the bowel was clearly consequent to disease in its neighbourhood, for there was a large tuberculated tumor that might be felt through the coat of the intestine, evidently a disease of the womb; not only accounting for the affection of the bowel, but that of the bladder also. The vagina was next examined; its cavity was shortened, its parietes thickened, giving the impression of an irregular

induration ; besides which, it was partially closed, apparently in consequence of inflammation with effusion of lymph, and the subsequent formation of transverse and oblique bands within its canal. She expressed an anxious hope that I should not think it necessary to use instruments ; upon which point I at once set her mind at rest, by stating my conviction that in her case instruments would not only prove useless but injurious.

Nov. 8. She said, that about two years since she was much distressed by a discharge from the vagina, at first pale, but afterward frequently tinged with blood, for many weeks attended with extreme irritation and pain in making water, and constant sense of great heat in the parts. This complaint was productive of feverish heat, and so much languor, that sometimes she was ready to faint with exhaustion : it continued nearly six months, and appears to have been the period when the effusion of coagulable lymph took place in the vagina.

Jan. 22. 1821. The irritable state of the rectum and of the uterine tumor, were constant sources of apprehension and dread. She experienced more torment than ever in passing her motions, notwithstanding the bowels were regulated with the greatest care. There was no change observed by examination of the intestine, although in other points the disease was extending itself, there being now complete retraction and numbness of the left thigh. Opiates, ætherial, and other antispasmodic medicines, forming the basis of her treatment, produced considerable relief to the uneasy state of the bowel.

Feb. 27. Examining the rectum with my finger, there was felt upon the left side of the intestine, about three inches above the anus, the rounded edge of a tumour, proceeding apparently from the sacrum. This tumour, the size of a walnut, was so dreadfully irritable, that it could scarcely endure the slightest touch. The bowel itself, though pain-

ful and tender, was not apparently otherwise diseased.

May 26. This poor woman, by the progressive extension of her disease, had for many weeks passed all the fæces by the vagina, into which they at first seemed to burst suddenly. For the last few weeks she had frequent floodings, with violently increased paroxysms of local pain, and on *May 27th* she was finally released from her sufferings.

On examination, I found the bladder healthy. The fundus of the womb was not much enlarged, but an extensive mass of compact scirrhus induration, connected with the womb, enveloped the rectum, and was attached posteriorly to the concavity of the sacrum, so as not without difficulty to admit of being dissected away.

On removal, the vagina laid open, was found extensively diseased and ulcerated; the cervix uteri with most of its internal cavity, was also ulcerated away. At one part this ulceration had opened a communication with the rectum, about two inches above the anus. The edges of this ulcer in the bowel were somewhat thickened, but not ragged nor indurated, but excessively vascular. In other respects the intestine was perfectly healthy.

CASE 40.

Ulcerated Opening into the Intestines, from an Abscess.

A. G., aged twenty-two, left her place in *January*, 1814, with severe pain in the left side of the abdomen, and went into St. George's Hospital, where, by frequent bleedings, and much care, she was in four months relieved, and discharged. She attended a family to Lisbon, but frequently felt the old pain in the old spot, with a sense of swelling inwardly, and acute or throbbing pain.

June, 1816, she came into the Infirmary for venereal eruptions, of which, by mercurial frictions she was cured. A considerable excitement, on this

occasion, produced neither pain nor change in the internal tumour, which seemed to vary in size, but was generally, to her feelings, equal to a large orange. Soon after she left the house the swelling enlarged, with a burning heat and throbbing, and a flush of inflammation on the corresponding part of the external integuments.

In *October*, she again came into the Infirmary, supposed pregnant ; but tenderness, local pain, and being perfectly regular, made it improbable. The internal heat and throbbing increased daily, with extreme tenderness, and much pain in taking a deep inspiration.

She was blistered and leeches repeatedly, to no purpose. The blisters having excited excessive irritation, fomentations were applied, and continued till *December 30.*, when, after increased suffering, she became suddenly easy, felt sick at the stomach, and presently vomited a quantity of blood and pus. The sickness repeatedly returned, and in the course of the day she threw up nearly a quart of the same kind of matter ; and also passed several stools, similar to what had been rejected by vomiting.

The occasional returns of vomiting, or purging, or both, brought away frequent and large quantities of offensive purulent matter, streaked with blood ; and thus continued till *July, 1817*, when they finally left her, under the use of various tonic medicines, by which she was restored to perfect health. In the following year she became pregnant, and was safely delivered of a large and healthy child.

Nov. 1820. The abdomen large, but perfectly free from pain, or uneasiness. She had an abscess form, which gave very great pain, about the lower part of the pharynx ; this, however, suppurated, and healed.

Nov. 1822. In the infirmary for syphilitic symptoms, she complained of occasional pains in the old

spot within the abdomen; and begged to know if she had not better lose some blood, as was her custom, when the pains were troublesome; the pulse was so soft, that I said, not at present.

Aug. 20. 1823. I called at her lodgings, found her in bed, and was told she had just escaped another attack of inflammation in the bowels, and was shewn a cupful of blood drawn the preceding day. In the mean time, turning round, a woman brought me in her arms another incidental result of her attack, which had ended in the birth of an uncommonly large child.

CASE 41.

Hæmorrhage from the Bowels; from Contusion.

Feb. 21. 1821. A young man, a butcher, reaching with a pole to hang up a heavy joint of beef, missed the hook, and to recover the weight set the heel of the pole against his belly; the contents of which were thus suddenly and violently pressed against the spine. He said he had often done the same thing with impunity, only feeling afterward a little temporary soreness.

On the evening of the accident, and the following morning, with a somewhat uneasy stool, he passed half a tea-cupful of fluid blood, and more each day till the 25th, when he called on me. I considered this most probably a laceration of the fine villous coat of some part of the intestines, and directed an infusion of roses to be taken every four hours.

Feb. 27. He was better, and passed less blood. The medicine was continued.

March 4. Perfectly recovered in every respect.

CASE 42.

Capillary Hæmorrhage ; from the Bowels.

Sept. 6. 1823. Through the kind attention of Mr. BARROW, I was furnished with the opportunity for examining the body of a corpulent, intemperate, middle-aged coachman; who had died from a complaint in the bowels. On the evening of *Sept. 2.* he complained of obscure pains, felt for some time before, in the bowels; which had previously been moved by physic. *Sept. 3.* Still much pain in and about the abdomen, not, however, increased by free pressure. He was bled, and directed some antimonial and febrifuge medicines. He vomited repeatedly during the day; in the evening was bled again; and thought his uneasiness relieved. *Sept. 4.* Early in the morning the bowels were moved, and he had a loose fæcal stool. Then commenced a discharge of thin bloody fluid from the bowels, with urgent tenesmus; the old pain remaining as before. The pulse now sunk in power, became rapid. Opiates were directed. The discharges of bloody fluid amounting in the course of the day to near three pints, towards evening he rapidly declined; and early the next morning expired.

On examination, the whole extent of the colon and rectum were of a darkish red or purple colour, and felt thickened, and pulpy. The other viscera sound, the great intestine (necessity requiring the examination to be made in the coffin) was with some difficulty removed, injected, and then laid open; when a quantity of thin blood, similar to that passed by stool, was found remaining in the colon, and rectum.

In no part was the external surface of the bowel, even when injected, materially vascular. The villous coat of the ileum, terminating in the cæcum, was uniformly and brilliantly injected. A

few spots upon this surface, the size of millet seeds, appeared when magnified, as if the villi had become sloughy, giving them a brown pulpy appearance, and not admitting the injection. The villous coat, traced from the ileum forwards into the colon, exhibited there the appearance of being partially injected. In one point superficially ulcerated to the breadth of a split pea, the cellular membrane at the bottom of the ulcer was beautifully injected; the membranous margin but sparingly. At other points the appearance was exactly the reverse; the circumference being highly coloured, and the centre not injected at all. This latter appearance was perhaps dependant on the surface of the ulcer being either obscured by a film of adherent lymph, or by its being sloughy.

Several of the large cells of the colon, inverted, were found to be so brilliantly injected, compared with the other parts, as to demonstrate that those retired spots, whatever their state in health, may, under the influence of disease, become extremely vascular; and as irritability increases with vascularity, this appearance explains how the worst symptoms may be, and often are, induced, by indigestible matters lodged in these recesses, when the bowels are in an irritable state.

No particular appearance, except that of extreme laxity of texture, was observed in the rectum.

CASE 43.

*Ulceration of the Colon.**

SIR S. M., in the year 1780, fell from the deck of his ship, and struck his side violently against the edge of a boat lying alongside. By this accident he was confined, and it was many months before he was well enough to stand upright. This diffi-

* Extracted from the MS. history in Mr. HEAVISIDE'S Museum, where the disease is preserved.

culty by degrees wore off, but he remained ever after liable to occasional pains in the part. Subsequent to this accident he was for many years before his death subject to gout, weak bowels, depraved appetite, and a winter cough.

In *February*, 1795, he was much exposed to the cold of a very severe winter, and to use his own words, “he felt his bowels chilled;” from this time he was never well. It was thought to be suppressed gout, and he went to Bath for ten weeks, to no purpose. Almost every night he had now great pain in his bowels. From these attacks he was generally relieved upon passing two or three motions, more or less purulent.

Thus he went on, having alternately, as he described them, two kinds of pain; one a grinding, gnawing, and oppressive pain; the other, (which always preceded a motion,) of the common griping kind. Latterly, both these kinds of pain came on in an aggravated degree every second or third day; then, by giving a purge, a great quantity of offensive purulent fæces were brought away, relieving him for a few days till his pains returned. His sufferings increased; he continued to languish only till the following *October*, when he died.

On examination, the viscera of the abdomen in general were found tolerably healthy; the principal disease being confined to the lower end of the ileum, cœcum, and especially the colon, in that part of its arch directly under the part where the bruise had been received fifteen years before. The whole length of the colon had suffered inflammation, and this had connected itself with ulceration through the whole extent of the mucous membrane of the bowel, the coats of which were three or four times their natural thickness, the diameter of the canal being diminished in the same proportion.

CASE 44.

Irritation and Ulceration in the Anus, from Acrimony in the Bowels.

April 10. 1823. A gentleman consulted me for an irritation at the verge of the anus, and deranged stomach and bowels. Loosely connected with an otherwise healthy stool, he shewed me a small quantity of albuminous matter, which suspended and unfolded in water, appeared to be a loose mass of a light fibrous white substance, as large as a walnut; taken out with a feather, and laid on paper, it collapsed.

The bowels always acted sufficiently, but he was subject to acidity at stomach, as often as two or three times a week; always inducing smarting and pain in and about the anus. These attacks often induced a vomiting that set the teeth on edge with a sour taste, as of lemon juice, in the mouth.

A curious circumstance in this case was, that although never subject to the least pain in stomach or bowels, yet while relief by vomiting impended, he always felt ill and extremely prone to spasmodic affections of the voluntary muscles; which, on being sick at stomach, were instantly relieved, and the feelings were at once those of perfect health again.

On a recent occasion of this kind, in the country, he had spent the day shooting, with a young nobleman. On sitting down to dinner he was seized with a most violent and painful cramp affecting the whole mass of muscles on the back of one thigh, and had nearly fainted. A medical gentleman at table, examined the tumor, and said he never had seen any thing like it, in degree. Shortly the spasm leaving that, seized upon the other thigh in a similar way. Presently the stomach and bowels were attacked with the usual acid vomiting and

purging, and immediately better, he was very quickly well.

April 15. Examining the parts, after exposure to the steam of warm water, I found them relaxed and full, the mucous membrane lining the sphincter very irritable and red, and at one point a small ulcer, extremely painful when touched; evidently the consequence of the parts having been kept in a state of perpetual irritation by the habitual derangement in the digestive functions. I directed a draught, with the infusion of quassia and decoction of bark, with a scruple of sulphate of magnesia, twice a day, and requested the little ulcer to be moistened daily with a solution of three grains of nitrate of silver, in an ounce of water.

May 8. The medicines continued till to day, were now laid aside, on account of a little cold, but the effect, he stated, had been complete. For several weeks no rejection of food, or other affection of stomach, irritation at the anus, or spasmodic tendency in the limbs, had been felt. On examination, the ulcer at the margin of the sphincter was healed, and the surface less vascular; in short, he considered himself perfectly well.

In this instance there is no doubt whatever, that had the deranged state of the stomach and bowels continued a little longer, the whole of the membrane lining the lower extremity and cavity of the bowel, would have run into ulceration, from the evident state of the parts upon which that action had already commenced.

CASE 45.

Hæmorrhoidal Tumours with Abscess, producing Ulceration in the Bowel.

A POOR woman, aged 44, was admitted into the Infirmary, *July 9. 1821.* Nearly two years subject to severe pains about the loins, violent bearing down, and costiveness, several swellings had formed

at the verge of the anus, the largest of which, (during a paroxysm of insanity,) she herself had cut off with scissars. A foul and extensive ulceration was the consequence, and last *April*, it was becoming less painful, when an abscess formed at the side of the rectum, burst, and discharged sometimes excessively. In *July*, the external ulceration was nearly healed, but matter poured out copiously from the rectum. The cavity of the bowel, examined by the finger, was apparently surrounded by irregularly transverse rings of coagulable lymph, from preceding inflammation; but no stricture was found to prevent the passage of fæces. This poor creature having two years before, been brutally knocked down, and left senseless, had been since that time subject to occasional derangement.

July 17. Bowels relaxed, stools yeasty and thin, with constant heavy, and sometimes cutting pains in the region of the colon, and about the rectum.

July 21. Worse, whatever was taken, as food or drink, with griping and severe pain, immediately passed off by the bowels. Pulse 100, and low. She was directed to take, at short intervals, an aromatic and anodyne medicine; which, however, failed to check the diarrhœa, and she died on the 25th instant.

In the abdomen the intestine ileum, lurid and vascular, was laid open, and its villous coat found discoloured, and its villi of a brown colour, as if disposed to slough, but no trace of ulceration, or scarcely any thickening. The head of the colon was very vascular externally. Upon opening it, little ulcers, the size of peas, were found to have penetrated through the inner membrane to the cellular coat. The other parts of the colon were sound; but the lower part of the rectum had formed a large and extensive sloughing ulcer, continuous with that external to the sphincter.

The part of the bowel in which, during the early progress of the disease, effused lymph was felt, in

examination, having become ulcerated, some of the masses of lymph deposited in the cellular texture of the gut, were thus exposed, while others, in the progressive disease of the cellular coat of the intestine, had been completely dislodged, and passed away with the stools.

The prevailing character in the latter period of this complaint was severe local pain ; rarely acute, but heavy, and most fatiguing.

CASE 46.

Hæmorrhoidal Complaints, followed by Diseased and Ulcerated Rectum.

AN unfortunate young woman, with a constitution broken up by disease, was at the age of 27 admitted into the Infirmary, *July 2. 1822.* She had, by her own account, more than once had severe attacks of the piles, had always been extremely prone to a costive state of bowels, and for many weeks had suffered from frequent discharges of blood, per anum. The cavity of the rectum was so excessively irritable, that the most gentle examination with the finger gave great pain, and though there was no evidence of stricture, there was clearly some disease. She felt occasional increase of pain in the bowel, and about the loins, with urgent desire to pass something by stool, and was then usually relieved on voiding a quantity of dark blood. The nurse several times set aside a large quantity of bloody fluid, said to be passed from the bowels ; but I suspected it was partly urine.

Aug. 17. Had been much distressed by a troublesome diarrhœa, to relieve which, after taking a variety of medicines, she was directed the bark with aromatic confection ; this diminishing abdominal tenderness, and lessening the number of stools, restored her to comparative comfort.

Oct. 1. The extreme irritability of the diseased

part of the bowel, notwithstanding constant reference to opiates, aperients, and emollient clysters, I in vain endeavoured to allay by the injection of a very weak solution of nitrate of silver; a grain to an ounce of water. At first it relieved, but soon lost its effect, and was laid aside.

The discharges of thin blood still continuing to pass off by the bowels, after trying terebinthinate and other astringent injections, she progressively declined; although opiates enabled her to get sleep. Abdomen extremely tender; pulse small, quick, and irritable; tongue clean.

Nov. 11. A painful, heated swelling, had formed at the side of the anus; the skin hard, red, and tense; the finger was passed per anum without now perceiving the least resistance from the sphincter, which appeared to be destroyed. The bowel felt rather enlarged, and in parts as if occupied by bleeding, fungoid, and ulcerated masses, high in temperature and irritability, the finger sinking here and there into recesses; one of which was found to be situated directly within the hard, red, and tense skin. There was now a total want of controul over the passage of the contents of the bowels.

Dec. 3. Sickness at stomach prevented her keeping any thing down, either solid or fluid. In this state she languished, and died *Dec. 23.*

On examination, all the viscera of the abdomen were perfectly sound except the lower end of the rectum, which removed, injected, and dissected, was found to be the only seat of disease. The mucous membrane was, for several inches above the verge of the anus, ulcerated away; and the diseased cellular membrane, in certain points, on the eve of mortification. The impression during life as to the partial distribution of irritability in this instance was strikingly borne out, and proved, by the partial illumination from the red injection. Some parts not having received any, while others

were of a brilliant scarlet; others again, being only slightly tinged.

The above appearances very closely resembled those I had observed in another case.* The characters, however, in this instance being made permanent by injection, rendered it a very interesting specimen of disease.†

CASE 47.

Irritable and Ulcerated Bowels, with supposed Stricture.

A GENTLEMAN, aged 36, surgeon in the army, consulted me, *Sept.* 8. 1821. for a severe complaint in his bowels, from which he could obtain no relief. He had served nine years in the Mediterranean, generally in good health, but always disposed to costiveness, and often requiring powerful and drastic purgatives.

Aug. 1820. Subsequent to much exertion, under great heat, was violently attacked with bilious diarrhœa; which, though of short duration, was imperceptibly succeeded by frequent, scanty, mucous, and bloody stools, with tenesmus. With these complaints he continued to do his duty, till at length, entirely disabled, he applied for leave to return home, *Jan.* 24. 1821.

The points of treatment, unavailing, would be tedious to enumerate. Almost every medicine was tried, various applications used in form of enema, and nearly every varied regulation in diet successively had recourse to, without relief.

In *March* 1821. Under the suspicion of stricture, a wax candle was passed, but neither it nor the finger could be introduced further than two or three inches. By perseverance, in a fortnight it passed five inches; but was then laid aside, upon his going to sea. For the space of four months,

* Case 45.

† The preparation is deposited in Mr. HEAVISIDE's museum.

purgative medicines were now regularly taken twice a week; feculent matter seldom passing without them. One tea spoonful of castor-oil, with two of tincture of senna, in a draught, was sufficient to unload the bowels. Injections, containing liquor plumbi acetatis in small quantity, or laudanum, appeared to check the mucous discharge a little; but colic pains being induced, they were laid aside.

Sept. 8. 1821. When he called upon me, he was moved from seven to ten times daily, not more than three times after mid-day. The bowels remained quiet during the night. The first motion always occurred before he could get his clothes on. In quantity a table spoonful, it had the appearance of discoloured pus; the call to pass it being urgent and immediate. That I examined, looked like gelatinous albumen, in some points coloured like pus, in one part marked with blood. The second stool occurred usually while dressing, consisting of small pieces of feculent substance, with the former kind of mucus. The third stool was commonly passed before finishing breakfast, or soon after, resembling the second. The subsequent motions generally contained small pieces of feculent matter, but the mucus or pus attending them, was more clear and transparent.

He had, of late, felt unable to walk without great fatigue, and sense of weakness in the loins and thighs; sitting was attended with uneasiness about the perineum, and right hip; and on laying down for some time, the debility in the loins, back, and thighs, was so increased, that he had great difficulty in raising himself again, and then by his arms only. The same difficulty attended turning in bed. There was also a constant dull pain about the lower part of the left side; but he had notwithstanding, in general a very good appetite.

I advised that he should take a simple, but hearty, strengthening animal diet, with good vegetable, and malt liquor; directing him the decoction of

bark, with infusion of gentian, tincture of cascarilla, and aromatic confection. This medicine was after a time rendered more powerful; and by these means, the weak low pulse at 64, was strengthened and quickened to 90. By injecting, and examining the bowel, I passed the silver ball probe, without his feeling it, finding eleven inches of the bowel perfectly free from stricture, or apparently irritation; setting his mind, upon this point, to rest, and giving him great comfort.

Oct. 14. The pain in the left side greatly relieved. The first motion, instead of taking place before he could draw on a stocking, now occurred twenty minutes after he was up; the second commonly after breakfast. The average now, was from four to seven, daily. The strength in walking was improved in the upper parts of the body, but the legs and feet remained weak as ever. The pain also about the hip in sitting, and the difficulty in getting up, were much abated, but by no means removed.

Oct. 18. Took his leave for the present, being about to visit Dublin.

April 1822. This gentleman informed me, by letter, that he had continued his medicines till within a week of the present date; he had then laid them aside, owing to violent attacks of ear-ach, tooth-ach, &c.; his general, and local health, remained much the same.

Aug. 28. Returned to London, he called upon me, when observing he walked less erect than before, he made a curious remark, stating, that in this respect he varied suddenly; for that when he had free evacuations of coarse fæces, there was always better power of walking or standing upright, than when the motions were less natural. Pulse, tongue, &c. very much as before. Bark and aromatics continued.

Sept. 4. Bowels in a bad state, *Sept. 1.* Had eight motions, and not a particle of fæces. Since

that he had occasionally passed a small proportion of fæces, and felt better for it. *Sept. 3.* had five motions, and only the last contained some fæces. When he had many motions, the quantity of each was so small, that although the call was so imperative that he frequently could not reach the water-closet in time, not half a tea-spoonful was passed. Finding the aromatics not answer, I directed decoction of bark $\mathfrak{z}\text{v.}$, compound infusion of gentian $\mathfrak{z}\text{ij.}$, compound tincture of bark $\mathfrak{z}\text{j.}$, sulphate of magnesia $\mathfrak{z}\text{v.}$, two table-spoonful to be taken two or three times a day.

Sept. 7. Had taken the medicine regularly, without any pain, the stools, in frequency as before, were now all fæcal. He said, he “felt great relief, and indescribably lighter and better from the evacuations.” Having to attend the Medical Board, the medicines were now laid aside, when he found to his surprise, that his bowels still continued for several days to act spontaneously, every stool containing natural fæces.

Sept. 17. I had first diminished, and then omitted the aperient salt, but it would not do; the medicine was therefore directed to be continued, as ordered *Sept. 4.*, under which he gradually improved.

Oct. This gentleman went out to join his regiment at Gibraltar, where he remained much the same.

July 31. 1823. Returned to England, he reached London, and paid me a visit. Complaints altogether unchanged, except in the addition of what he supposed rheumatism, about the right hip. The limb was much wasted, and drawn up, so that he could only bring his toe to the ground; and could not now move a step without crutches. He begged me to examine the hip, but finding a light blow upon the great trochanter, directed across the pelvis, gave not the least uneasiness in the joint, and perceiving the striking resemblance to what I had seen in other cases of the same nature, I could

only conclude the affection nervous and sympathetic. To relieve the pain, I requested an opiate plaister might be applied, which was in some degree successful. He now again left town, for Ireland.

CASE 48.

Ulcer in the Rectum.

A GENTLEMAN, aged 32, visited London for advice. He complained of constant pain, and soreness about the anus, with frequent returns of tenesmus and bearing down. On examination, I found two small hæmorrhoidal swellings at the side of the anus. At one part the surface was ulcerated, and the ulcer, partly external, extended itself for some distance within the sphincter. Dr. HOOPER directed such medicines as were best suited to improve tone, and restore strength in a weak and irritable constitution. During several weeks various local applications were tried without benefit. Dry lint was then used alone; the surface improved, but did not heal. The lint was now dipped in a solution of five grains of the *argentum nitratum*, in an ounce of water. This produced a smarting pain, but its good effect was soon manifest, for in three days new skin began to form; in a fortnight most of the external ulcer was cicatrized; and in a month more, that part of it within the sphincter was also healed. This might have been presumed, by the relief experienced from irritation and tenesmus, but it was proved by examining the parts when protruded.

CASE. 49.

Hæmorrhage from the Bowels; from Sloughing.

A THIN healthy young woman, hanging cloaths from a second-floor window, over-reached herself, the line broke, dragged her out, and she fell on

her side, with a twist of the back, upon the stones of a stable yard. I visited her the same day *Oct.* 18. 1820, and directed a large blister to her side, and an opening mixture. She said that in the fall, the end of the strong busk of her stays, pushed violently in just above the bladder towards the back-bone, and at this point, which appeared to be about the middle of the arch of the colon, pressure was painful. For the first week I persuaded her to keep herself abstinent, relaxed, and quiet; and had a second blister applied.

Nov. 6. For a day or two after the accident the pain on pressure, where the back had been bruised, was distressing, but this relieved by the blister, she felt no more of it till *Nov.* 2. (the 16th day); on this day she had been washing, and supposed she might possibly have strained herself, when towards evening she felt violent shooting, and prickling pains, her back and loins being worse than usual, with tenesmus, which, only a quarter of an hour after the pain began in the bowels, induced her to think she could pass a motion, but she only parted with more than half a pint of dark, coagulated blood, without other matter.

Easier for an hour, she then felt the same pains return with a sensation of prickling and pinching, neither higher nor lower than the original spot, but extended occasionally a hand-breadth laterally. The second attack was about ten at night, and from this she was somewhat relieved by voiding half a tea-cup full of blood. The pains were so distressing, as to render her watchful and feverish: afraid to cough, sneeze, and even to breathe, on account of the pain.

The following morning, she took an opening powder, and this, in a quarter of an hour, relieved her greatly, upon her passing about half a pint of red, and fluid blood; she remained easier all the day, but on the return of night got little sleep, and that very disturbed.

Nov. 4. She made known what had happened, and I directed the infusion of roses to be taken frequently ; this in two days set her so perfectly to rights, that she had no return of bleeding or pain, nor felt the least uneasiness on moderate pressure.

In this instance it appears to me, from the circumstances of the case, the bleeding came from the intestines, and that the part injured was the transverse arch of the colon : it also appears to me that the most probable cause of the bleeding, was the separation or sloughing of the bruised internal surface of the bowel, which in casting off had opened vessels of sufficient consequence to furnish the hæmorrhage that followed. The manner and course of the symptoms leave little room for doubt upon this point ; and considering it as established, it is worthy of remark, that the part so soon assumed healthy action ; as the patient only four days after the bleeding experienced no local inconvenience in any one respect, nor the least uneasiness in any part of her bowels, even under pressure.

CASE 50.

Irritable and Ulcerated Bowels.

Sept. 8. 1822. A young woman, with a severe attack of bilious vomiting, and purging, had great pain in the back, and violent griping and twisting pains in the bowels. The pulse small, was 104, no fulness, and little tenderness of abdomen. In a second attack, with pains as at first, the discharges were of a tenacious mucous kind ; unmixed with bile, or blood. This morning had six copious motions containing no fæces, but only a whitish or yellow coloured matter, with frequent shiverings. The great fulness of abdomen was thus relieved, but not the tenderness. I directed a tonic and aperient mixture.

Sept. 13. The pains, and laxity of bowels rather relieved. The griping principally in the

line of the colon, and sometimes very violent. Sometimes from under the left ribs, where the sigmoide flexure is seated, the pain moved slowly downwards, and passing along the line of the intestine, in twenty minutes crossed the abdomen, and reached the edge of the right ribs answering to the situation of the head of the colon. The aperient power of the medicine was increased.

Sept. 16. The latter medicine, like the former, produced increased pain, principally in a direction contrary to the natural course of action in the bowel, being from left to right; but when a stool occurred, she passed six or seven hardened lumps, the size of plums (no doubt recently dislodged from the cells of the colon), and felt much easier the whole day after, than at any time for seven weeks before.

Sept. 19. The medicine regularly taken. The bowels less relaxed, and more free from pain. The kind of pain now altered, and its direction changed to that of the natural course of the colon, passing from the right to the left side. Still a fixed uneasiness under the left ribs; but less in degree. Directed three grains of the blue pill to be taken every third night.

Oct. 2. The bowels regulated by the medicine, and the stools generally of natural appearance, though sometimes mucous; the pain under the left side prevented her taking a full breath. Upon the whole there appeared reason to believe some degree of ulceration existed about the sigmoide flexure of the colon. Under this impression, and in the hope that any medicine more particularly likely to favour healthy action, would by this means lessen irritability, and hence relieve the uneasiness and pain, I directed a mixture containing some bals. copaibæ, and sulphate of magnesia.

Oct. 4. Bowels lax, stools very black and scalding. The pain in the left side better; breath more free.

Oct. 13. Had taken the medicines regularly, and was in all respects much relieved.

Dec. 16. She called, and said she had now laid aside her medicine some time, having entirely lost the pain across the body; the pain in the left side returning to a trifling degree, whenever her bowels were at all confined. Appetite and health much improved.

Feb. 26. 1823. From violent cold, there had been a partial return of symptoms, for which however I could not prevail upon her to return to the balsamic mixture. The consequence was, she had relapse of occasional pain across the abdomen, springing from the old spot, in the left side. By the direction of some medicines calculated to relax the bowels, and relieve irritation, she progressively improved, and was soon enabled again to lay aside medicine.

CASE 51.

Hæmorrhoidal Ulceration.

Jan. 15. 1822. A man near fifty years of age requested me to look at a small Hæmorrhoidal tumour, to which I directed him to apply a cold saturnine lotion. I saw no more of him till *March 2.*; when there was an irritable painful ulcer, the size of a shilling, upon the part. For this I ordered a weak solution of the nitrate of silver, to be applied upon lint. This at first gave ease, and improved the sore, but the habit of the bowels so unsteady and irritable, he was frequently taking medicines from the physician, Dr. JAMES; the ulcer increased, he neglected the application, and the next time I saw him was *April 27.* when he reported he had suffered severely from a bowel complaint, under which the ulceration had much increased, and was excessively painful. The ulcer had now all the characters of extreme irritability. A so-

lution of ten grains of the nitrate of silver, in one ounce of water, was directed as an application.

April 30. The lotion had given him, when just applied, very acute pain, but the appearance of the sore was certainly improved, and more florid; the edges exhibiting the pearly colour of approaching cicatrization. At present, the bowels were regular, but the recent attack of diarrhœa had, to use his own words, "thrown the wound into the greatest confusion." The excitement induced by the bilious fæcal matters flowing perpetually over its surface kept up a degree of irritation hardly to be borne, and not to be described; frequently feeling as if "pepper" had been applied to the part.

May 11. The ulceration was not less extensive, but retained in other respects its improved appearance; he said it was now and then very painful, and that in fact the only time when it was easy, was when he applied the lotion, and for the next two or three hours. He was, however, now under treatment for pulmonary complaints, with much oppression, cough, and hectic fever.

Aug. 27. Enquiring after him, was informed he had progressively sunk, and had recently died of consumption.

CASE 52.

Ulceration with Tumour in the Rectum.

J. EARLE, aged 63, after having been several years subject to diarrhœa, for many months to constant pain in the loins, and still more lately to a severe pain in the rectum, opposite the middle of the sacrum, was admitted, under the physician's care, into the Infirmary, where he became exceedingly emaciated, and at length died, exhausted by constant pain and irritation. The stools latterly were as frequent as every hour, although he took scarcely any support; the motions were generally fluid, but rarely fæcal. About

three months before his death, the rectum had been examined, but nothing particular was ascertained.

Dr. JAMES, who had paid the most humane attention to the poor man through his illness, considering his complaints had not been perfectly understood, requested the body might be opened. The examination was made *January 29. 1819.* On opening the abdomen, a circumscribed tumour, the size of a hen's egg, was felt within the rectum; the bowel was therefore removed and opened. The lower end of the intestine for the space of five inches above the sphincter was healthy, and consequently the disease could not have been felt in examining per anum.

The disease itself consisted of two flattened tumours, apparently a deposit in the cellular texture, between the inner membrane and the muscular coat, which by pressing the two sides of the gut together, might have partially impeded the passage of contents, although the bowels were found empty.

The irritation from this disease must have been great, for one of the inner surfaces had ulcerated into a deep cavity, the mucous membrane round the margin of the ulcer being thickened and pulpy, and its texture rendered indeterminate by small specks of blood effused into its substance. The projecting edges of the ulcer lay beyond the basis of the tumour within the intestine. On dividing through the substance of the tumour it was in some parts firm and compact, as if small tubercular deposits of fatty, white-coloured matter had taken place into the cellular membrane. The muscular coat was perfectly healthy.

CHAPTER III.

ON THE GROWTH OF TUMOURS WITHIN THE BOWEL.

SECT. I.

On the Causes of the Disease.

147. THE formation of tumours within the rectum is not a frequent consequence of disease. When it does occur, it is sometimes beyond the reach of surgery to remove, or even relieve. Occasionally, it is otherwise. I have seen several instances of disease of this kind, of which I have not preserved accurate notes. In one of these, had the patient felt sufficient confidence in the means proposed for his relief, an operation might have been performed with success. The late Mr. HEY of Leeds has published a case of this kind. These remarks will show the importance of considering and discriminating this disease in practice.

148. The determining the particular cause that may have produced any complaint of this description will generally be difficult. In a few instances it would appear to be referable to some mechanical irritation, disturbing the healthy actions of the part. In one case it followed the operation for fistula in ano; but most commonly it would appear that a latent disposition, either in the part or the constitution, is merely called into action by some local irritation.

149. M. DESAULT considered the formation of tumours and obstructions in the rectum as frequently caused by venereal complaints imperfectly cured. He styles them scirrhus affections; but,

I presume, it may be taken for granted that he renders the term rather comprehensive than correct, since he relates, under this title, two cases, both of which were cured by compression only.

150. That disease of this, or indeed of any other kind, may sometimes occur in those who have formerly had venereal complaints, is so clear, that this circumstance seems to afford a very inconclusive argument in favour of any necessary connection; and even should mercury, under suspicion of venereal taint, have been employed, and that with success, it still appears to me that, considering how frequently the mercurial stimulus has excited absorption in other diseases, there will be much stronger ground for determining that the complaint was not scirrhus, than for asserting that it was venereal.

SECT. II.

On the Symptoms and Appearances.

151. THE early progress of tumours in the rectum will rarely excite much attention; particularly as the functions and feelings incident to the bowels are occasionally subject to considerable variation, even in perfect health.

The first circumstance, perhaps, that may draw the attention, may be a sense of local uneasiness, or pain: but this symptom, as far as I have seen, having been always connected, either with confinement or relaxation of bowels, the inconvenience has been naturally attributed to the only obvious cause; and the means adopted under this impression succeed at first in relieving, if not removing the complaint.

152. These remarks, however, apply only to tumours formed between the coats of the intestine, and even in these there will be exceptions, where the disease assumes the appearances and follows the usual course of scrophula in other parts.

When a tumour is projected from the inner membrane of the gut, attached by a narrow neck, I have known it reach the size of a large chesnut, without any symptom, except trifling pain in passing a confined motion.

153. M. DELPECH mentions an instance in which several tumours of this kind in the rectum, excited tenesmus and frequent griping pains in the bowels. Upon one of these occasions the violent contractions of the intestine ruptured the neck of one of the tumours, which, voided by the anus, led to examination of the parts, and the consequent detection of the disease.

154. In the progress of the complaint, symptoms become more distinct; and, provided the disease is situated between the coats of the intestine, and has, consequently, an intimate connection with the surrounding structure, there will, in some cases, be constant uneasiness, or sense of weight, or occasional paroxysms of pain about the sacrum. When, on the other hand, the patient is only incommoded by occasional obstruction to the passage of the fæces, the tumour will generally be found so attached as to admit of removal by an operation.

155. In the advanced stages, where the disease has been extensively diffused through the cellular membrane, I have seen frequent and sometimes excessive hæmorrhage from the external surface of a soft tubercular mass, the blood not having been effused from an ulcerated part, but poured out by the exhalent arteries dispersed upon the surface of the disease. Under these circumstances the blood accumulates in the rectum, till, exciting a painful spasm, it is expelled, and the patient relieved.

156. I have seen one specimen of tumour formed between the coats of the intestine ileum, projecting inward so as to occupy the whole natural space of the bowel; and consequently as it must have absolutely obstructed the passage of fæces, it most probably from this cause terminated fatally. The size

of the tumour is that of a small apple, the base is broad; it is covered by the inner membrane of the bowel, and where it is divided, exhibits a very compact scirrhus structure. This disease is preserved in Dr. HOOPER's valuable collection.

157. I many years since examined a grown person having a tumour in the rectum, attached by a narrow neck, about three inches above the sphincter. It gave no pain under examination, was moderately firm, but appeared to be softest towards the surface, from which there had been repeated bleeding. In this case, although the disease was hæmorrhagic, and had excited tenesmus, it was painless, and might have been safely removed.

158. *Aug. 27. 1822.* A child, aged five years, was brought to me, with a red, moist, and soft tumour, the size of a large hazel nut, at the verge of the anus; at first appearing like a prolapsus. Its attachment proved to be by a narrow neck, like the stalk of a fig, to the inner membrane of the bowel. The mother said she had occasionally observed it many months, but that it pushed out more and more, or became larger. Its feel was firm and fleshy. Gentle pressure left it protruding, but a more firm pressure returned it into the bowel. It appeared to give no pain, but sometimes bled. It was thought to have originated in some severe purgative medicines; for after costiveness, many bloody stools followed, with those appearances which gradually assumed the peculiar characters of the tumour.

159. One of the most distressing symptoms produced by tumours in this situation, is the consequence of irritation from sympathy of parts. Sooner or later an irksome diarrhœa generally takes place, from the increased quantity of fluids poured into the bowels; a complaint that while it harasses the patient, diminishes his strength, and eventually renders the stomach irritable, and incapable of its proper functions.

160. A tumour, the size of a chesnut, attached by a broad basis to the coats of the rectum, brought into view during a prolapsus of the bowel, was in one instance removed by ligature, by Mr. JOHNSTON. Much inflammation and sloughing followed, even subsequent to its dropping off; but the perfect cure of the prolapsus, as well as the removal of the tumour, were the fruit of the operation. Fleishy tumours, or polypi, are mentioned by M. PORTAL, as having been occasionally found in the great intestines; creating colic pains, and impeding the transit of contents.

161. Dr. MONRO relates the case of a middle-aged lady, whose complaints were pain in the region of the stomach, with flatulence, irritation, and relaxed bowels; in whom a tumour, apparently the size of an orange, could be felt to the right of the navel. After death a firm tumour was found within the stomach, attached by a neck to its lesser curvature. The stomach had fallen so low as to admit of the disease being felt, near the navel, during life.

162. The structure of many of these tumours exhibits exactly the appearances that are observed in scirrhus affections in other parts of the body. The scirrhus tumour seated in the coats of the intestine, and projecting into the cavity, I have seen, but believe it to be extremely rare. The soft tumour, I have found, in connection with similar disease, either in the bladder in the male, or the uterus in the female.

SECT. III.

On the Treatment.

163. THE first object in this as in all other diseases, must be to obtain a clear and correct knowledge of all its circumstances. The practitioner, therefore, when from symptoms he is led to suspect the seat of the complaint, must point out the

necessity for making more particular enquiry, in the way of examination, as the only means by which a clear idea can be obtained regarding the figure, firmness, irritability, or sensibility of the disease. By these means alone can the information be acquired which is necessary, for the deciding whether the affection is, or is not, of such nature as to admit or require being relieved or removed by an operation.

164. Where a tumour is found to be small in size, of moderately firm texture, and not painful under gentle pressure, benefit may probably be derived from the occasional introduction of an instrument capable of making a degree of pressure. In some circumstances, this purpose may be answered by the elastic gum bougie; in others the mode recommended by M. DESAULT may be preferred, a bougie of lint supported by a concealed probe, being at intervals allowed to remain for a time in contact with the tumour. Whatever instrument is used, the degree of pressure, and the frequency of its repetition, must be regulated with care, according to the patient's feelings, and the tendency manifested by the disease.

165. The disease may on examination be found to possess the firmness of scirrhus, or it may, on the contrary, have the soft consistence of fungus hæmatodes. In either state the use of bougies will be more likely to aggravate than to arrest the progress of the complaint. In both these forms of disease, the only principle to be kept in view, is that of attending diligently to the daily progress of symptoms, endeavouring to relieve them as they occur, either by the judicious exhibition of opiates, or some other of the means mentioned as appropriate for the treatment of stricture. (84.)

166. The soft pulpy tumour generally becomes, sooner or later, subject to hæmorrhage; this is consequently a circumstance that may at any time require attention. The object, however, is merely

that of restraining a flux of blood, without expecting the removal of the cause by any thing that can be proposed in the way of treatment. The present loss of blood may be generally arrested, by directing a strong astringent injection to be thrown up. This may, according to circumstances, be an infusion of roses, decoction of oak-bark, of the rind of the pomegranate, or strong infusion of galls; any of these may be rendered more powerful by the addition of a concentrated aluminous solution.

167. When, from the irritation of the disease, nausea, vomiting, or diarrhoea supervene, medicines must be directed to quiet these complaints. The most useful remedies for this purpose are opiates and aromatics.

168. The appearance of purulent matter in the stools generally argues the existence of ulceration; but whether the ulcerated surface is exposed towards the cavity of the gut, or otherwise, can only be known by an examination per anum, the most satisfactory of all methods of enquiry, where the seat of the affection is within reach of the finger.

169. Suppose the disease is known to have ulcerated, I am not acquainted with any plan of treatment that has much chance of success; as, however, it is our duty to attempt something, I should recommend those means that might operate through the medium of the constitution, either with a view to improve strength and moderate excessive action (138.), or diminish excessive irritability, according to circumstances.

170. Should the tumour be such as to admit of removal by an operation (152.), the ligature may be recommended. Preparatory to its application, it will, however, be right to empty the bowels. As to the particular mode of applying the ligature, no specific direction can be given. When the tumour is large, or its attachment high up, advantage may be gained in the freedom of operating by dilating the sphincter, by the previous introduction

of sponge tent. In *December*, 1820, I removed by ligature a tumour the size of a large cherry, growing by a narrow neck from the internal surface of the rectum, in a child of nine years old; situated so low down as to admit of its being brought out by straining. In consistence, it was firm, but not scirrhus; neither was the operation painful.

171. In the application of the ligature, the manner which I think best, from having found it most convenient in the extirpation of an exceedingly enlarged tonsil, is that recommended by Ambrose Pare. It is a simple ligature of sufficient strength, with a running noose at one end; this adjusted round the basis of the tumour, the loop is tightened by an instrument with a small ring that runs freely over the line, pushing the knot before it, and consequently diminishing the noose, or tightening the ligature to the degree required. In some circumstances, perhaps the ligature may be better applied by a canula.

172. Any tendency to inflammation previous to the dropping off of the ligature, may be checked or regulated by occasional warm emollient injections, assisted by fomentations externally.

M. DESAULT mentions his having removed by ligature a tumour of this kind, the size of a hen's egg; its attachment was near six inches above the anus; the ligature came away on the eighth day, and the patient did well.

173. Where the tumour is within view, M. DESAULT recommends the ligature to be first secured, and the tumour then cut off, to avoid the offence from its mortifying, and the injury that might arise from excoriation of surrounding parts. These reasons, however, are not of sufficient weight to counterbalance what has always appeared to me objectionable in the practice. It is clear that any living part falling into a state of decay, must be offensive; but it is to me equally clear, and that

from long observation, that when a part is thus destroyed, the perfect mortification of the dead part assists in completing that process of vitality by which the ligature is separated ; and as the application of a ligature now and then excites much constitutional irritation, so is it an object that may regard even the safety of the patient, to attend to every circumstance that may assist in expediting that ulceration by which the ligature is to be eventually thrown off.

CHAPTER IV.

ON PROLAPSUS ANI.

SECT. I.

On the Causes of the Disease.

174. THE verge of the anus, surrounded by a strong band of muscular fibres, and supported in its place by other muscular expansions, is occasionally subject to relaxation; and any circumstance that favours this relaxation may become a cause of prolapsus ani.

175. Disordered states of the bowels are among the most frequent causes of this complaint. Diarrhœa, by weakening the constitution, and particularly the intestinal canal, is sometimes the means of inducing prolapsus ani, although it is more commonly brought on by attacks of cholera morbus, or dysentery. The irritation from worms, or the rough operation of drastic purgatives, will not unfrequently produce it. I have seen several instances of this in children, and was very lately consulted by a young lady, who, when a child, had been subject to worms, for which her mamma was persuaded to give her a patent worm-medicine: it operated so violently as to produce a prolapsus ani, to which she has ever since remained subject.

176. One of the most formidable instances I ever witnessed of this infirmity was in 1815, in a poor man, forty-one years of age, in whom it was brought on, together with the more common symptoms of colica pictonum, by working many years at his business as a house painter.

177. Habitual confinement of bowels, and the occasional straining incident to such state, are frequent causes of prolapsus. The pressure of the gravid uterus, by impeding the functions of the bowels, or any other circumstances that either prevent their regular action, or induce violent efforts, will bring on this complaint. The severe pains of labour, lifting heavy weights, or external bruises will produce it, and especially the straining and tenesmus occasioned by an irritable bladder, whether this is dependent on stricture in the urethra, stone, diseased prostrate gland, or any other cause.

SECT. II.

On the Symptoms and Appearances.

178. THE order of the symptoms is subject to much variation. In some the disease appears suddenly, in others its approach is almost imperceptible. In young children, who, either from having been too long kept at the breast, or from bad diet, possess a weakened and relaxed fibre, it commonly appears to arise from mere debility in the sphincter, which giving way, allows the bowel to be suddenly protruded, sometimes to a considerable extent. In grown persons, however, I have scarcely ever seen it take place in this manner; it is most commonly produced by slow degrees. In the efforts to relieve the bowels, a fulness is usually first observed about the anus; soon after this, a thin fold of the inner membrane of the gut, generally very vascular, may be perceived to protrude; and this becomes more manifest, till at length a tumour of considerable bulk is formed. This tumour, at first only a production of the inner membrane, subsequently consists of a portion of the entire bowel, protruded completely beyond the verge of the anus. The degree of protrusion may be such as to show that, although the bowel

is connected by its peritoneal covering, as well as by its blood-vessels, to the spine, these parts are occasionally capable of great relaxation, where the complaint is gradually formed. I have, in various instances, seen in young children the prolapsed part of the bowel produce a tumour four or five inches in length; and in the adult subject, especially in aged persons, have found the volume of the protrusion exceed the size of a large orange. A late writer speaks of an extent including several feet of intestine being thus circumstanced*; but this must be regarded as, at least, a very unusual occurrence.

179. In the examination necessarily connected with the reduction of these tumours, it has frequently appeared to me that the protrusion, although favoured by a relaxed sphincter, has been partly the consequence of relaxation in the coats of the bowel itself. I was very lately able to prove the accuracy of this opinion in examining the body of a man who died of apoplexy, and who, for years had been subject to prolapsus of the rectum. Laying open the abdomen, the intestines in general were not deficient in tone; the rectum and anus were removed. For near six inches the bowel was enlarged. The superior part of the intestine, contracted and firm, did not exceed the diameter of half an inch; the inferior, relaxed, flaccid, and unresisting, was nearly three inches in diameter. As the whole of the intestine was empty, the comparative state of its different parts was more readily determined; and it was evident that, while the upper part had retained its healthy tone, the lower portion had long lost its power of action, or resistance, and was subject to every impression, either from contents or surrounding parts. The muscular fibres of the longitudinal bands, perfect upon the contracted, were dispersed and lost on reaching

* M. Delpech.

the dilated portion of the intestine. The volume of the relaxed part of the bowel about equalled the quantity I had on one occasion found protruded, when requested to visit him, about five months before his death.

180. Extreme relaxation of surface, unattended with prolapsus, a complaint to which the lower part of the rectum is subject, sometimes gives rise to excessive discharges, great debility, and other most distressing symptoms; for which, however, an effectual remedy may in particular cases be found.*

181. In its natural state, the internal surface of the rectum is soft, tender, and moist; but I have, more than once, in persons who were in years, found the protruded part of the gut, by long exposure, very much thickened, of more firm texture, and dry; appearing in fact like a part covered with strong integuments.

182. In one instance, a small extent of the lower extremity of the bowel remaining permanently protruded, afforded me the opportunity of watching the progressive change by which the fine mucous membrane became converted, as it were, into a part of the external integument.† Neither is this power of accommodation, this facility in changing its character according to circumstances, a gift bestowed only upon the inner surface of the rectum; a case is recorded in which a part of the colon was wounded, and protruded for many years in a state of inversion, upon the left side of the belly; the protruded gut would bear washing with the greatest freedom, with ice and snow water, in the coldest weather; and the effect of exposure to the cold air, was only to render it contracted, hardened, and of a paler colour.‡ Where this change has taken place to any considerable extent, I have not found reduction always prac-

* Case 53.

† Case 69.

‡ Phil. Trans. vol. xxxi.

ticable. M. LIEUTAUD seems to have met with this state of parts, which he terms scirrhus: he says, “La partie du rectum déplacée, devient quelquefois squirrheuse; et l’on a alors beaucoup de peine à la faire rentrer.”*

183. Where the sphincter has not entirely lost its power of action, the constriction may produce either a partial or total arrest of circulation in the prolapsed parts, inducing inflammation, and even mortification. The risk of this event forms one of the strongest reasons in favour of immediate reduction, in most tumours of this description.

184. Inflammation only, coming upon the parts, in a state of prolapsus, may render difficult, or totally prevent the possibility of, reduction. The protruded portion of bowel occasionally becomes adherent in its new position, and the efforts necessary to effect the reduction, must be those that are sufficient for separating the adherent surfaces. This I have experienced; and was agreeably surprised to observe how readily the parts were disposed to overlook the violence they had necessarily sustained in the operation. †

185. Prolapsus, although it may not induce total arrest of circulation, is generally productive of difficulty in the return of the venous blood; on some occasions the over-distended veins may be seen exposed, and may be observed to be unable to relieve themselves, and in this embarrassment, the powers of the constitution, ever active in removing evil where prevention fails, have been watched; while, without the least disturbance to the system, the varicose vessels have sloughed away, and the parts have readily healed up as if nothing of the least importance had occurred. ‡

186. It now and then happens that complaints similar to the above in external appearance, but of

* Précis de la Medecine, tom. iii.

† Case 68.

‡ Case 69.

a more complicated nature, fall under observation ; and unless the practitioner is previously aware of the exact relation that the one case bears to the other, he will not discern accurately between them, and will certainly not adopt the curative means most likely to succeed.

187. The intestinal canal, a continued tube possessing peculiar powers, may be expected to be subject to peculiar affections. It is susceptible of partial and transitory contraction, is highly elastic, and generally contains air more or less extensively diffused through its cavity. Owing to these and other circumstances, it is occasionally exposed to an accident that cannot occur to any other part of the body. It is liable to have one part of its tube thrust forward, as it were, into that which is immediately before it in the course of the canal, forming what has been termed an intus-susception.

188. This accident in young children, while the parts still retain much of their original tone, is sometimes extremely dangerous, and when it produces symptoms, it generally terminates fatally ; but in grown persons I have frequently ascertained its existence in examination after death without any reason for thinking it had produced inconvenience, much less danger, owing, as I believe, to the gradual diminution of tone, which very commonly renders the bowels, in advanced age, indisposed even to the requisite degree of action in the regular propulsion of their contents.

189. The manner in which the small intestine ileum terminates, by insertion into the comparatively large head of the colon, will in some degree explain why the former part is now and then found included within the latter : where the circumstances producing this kind of derangement continue to operate, the displacement may go on increasing to an astonishing extent. I have, in several instances, found a considerable portion of the colon, together with the cœcum, and part of

the ileum, included within the lower end of the colon and rectum.*

190. A more frequent and, generally speaking, less serious mode of intus-susception, however, is that in which the middle or upper portion of the rectum is received into the part beneath. Where this effect of relaxation and weakness has become habitual, the first object in attending to any complaint in the bowels, ought to be to ascertain the fact, and this can be determined only by proper enquiry, and a perfect examination. Habitual intus-susception, as an internal complaint, may continue many years without material distress to the patient, but its existence will influence every disorder the bowels can suffer, and may at any time, from being unknown, and therefore unattended to, produce in a few hours, consequences ever after the most distressing, and most lamentable. From loaded bowels, or any other cause, the displaced parts may from inflammation undergo the change already noticed, with regard to external prolapsus. (184.) If this should occur, an occasional infirmity is at once converted into a permanent and incurable disease; the functions of the parts more deranged, and their feelings more distressing than before, renders weary, and irksome, if not extremely painful, every remaining hour of life. This is not an assertion of fancy; but that which is proved true, by the progress, and circumstances ascertained in the annexed cases. †

191. Should this peculiar state of parts occur, in conjunction with relaxation of the sphincter, there is nothing to prevent the inverted part of the bowel within the rectum protruding outwardly. This protrusion has taken place, and it is very important to know also that it has most frequently been mistaken for a common prolapsus ani. Provided, however, the practitioner has previously

* Case 72.

† Cases 23. 25. 59. and 71.

formed a clear idea of the two cases, and the exact relation the one bears to the other, there will be no difficulty in at once distinguishing them.

192. In the prolapsus ani, the lower end of the bowel, or that directly above the sphincter muscle, will be first protruded; it will be inverted, and confine within it a corresponding extent of the uninverted gut next above it. Now, if in examination, a probe be introduced between the circle of the relaxed sphincter and that of the prolapsed bowel, it will of course be prevented passing inward by the position of the parts, the rectum being folded down immediately within the anus.

193. In intus-susception, on the other hand, the rectum is no further concerned than in having permitted the superior part of the bowel to pass down into its cavity, and consequently if the portion of intestine that may have protruded through the anus be examined, a probe may with ease be passed freely up between the sphincter and internal surface of the rectum, and the apposed surface of the inverted colon, and may also, without the least difficulty, be passed freely round the whole circle of the sphincter, between it and the prolapsed intestine.

This distinction is of much practical importance; the want of it may involve the character of the practitioner, and will infinitely diminish the chance of recovery to the patient.

194. Where intus-susception has taken place to such an extent, as to have brought down the small into the large intestine, and particularly where the bowel so circumstanced is protruded beyond the anus, it constitutes a case of the most serious and critical description, compared with a mere prolapsus of the anus. The difficulty and uncertainty of the event in any attempt at replacement in the first case is infinitely great, while in the second, there is commonly little or no difficulty at all.

SECT. III.

On the Treatment.

195. THE particular nature of the cause will determine the treatment required for the removal of prolapsus ani. Where it occurs in infancy or early youth, as the result of extreme laxity of fibre from too long suckling, it is scarcely necessary to observe, that till the child is weaned, no plan of cure is worth the trial. Should a similar state of constitution have been favoured by a poor and unwholesome diet, this point also must of course be regarded in the treatment. The state of the habit must be corrected by the use of tonics, as bark, steel, and the cold bath, aided by an appropriate regimen. Under this plan, with constant attention to preserve regularity in the action of the bowels, the protrusion will in many cases become less considerable, less frequent, and will eventually cease to return at all.

196. Prolapsus now and then occurs under the operation of drastic purgatives, where there is no natural disposition to the complaint, for which the required treatment will be some attention to rest, and more to the avoiding the re-application of the cause, by any immoderate irritation of the bowels.

197. Where prolapsus in the adult has been brought on by diarrhœa, dysentery, or colica pictonum, attention may be required for the local complaint, but no material step can be taken toward its cure, till the disorder of the bowels is removed, or the constitutional state corrected.

198. Prolapsus, connected with labour pains, is generally of temporary duration; the cause upon which it depends being transitory, the parts generally soon recover themselves.

199. In reducing a prolapsus ani, the application of gentle pressure, the fingers being previously moistened with oil, is usually all that is necessary;

it frequently happens that if the patient reclines on a sofa or bed for half an hour, this alone will enable the parts to recover themselves, or should the prolapsus not return spontaneously it may then be reduced in the manner above-mentioned.

200. When, from neglect or other cause, the quantity of the protrusion has become considerable, its reduction may not prove so easy. The object in operating must then be to return that part first, which was last pushed down, to effect which, one of the fingers may be gently insinuated into the cavity of the protruded bowel, and may be made very useful in facilitating the reduction of the prolapsus; these endeavours of the operator being assisted by maintaining a steady and equal pressure upon the other parts of the tumour.

201. Should inflammation and constriction have taken place, active measures will be necessary for the prevention of serious mischief to the bowel, which, unless relieved, may fall into a state of gangrene. Immersion in the warm bath may here prove useful; it will favour relaxation, and sometimes render reduction practicable. If this should not succeed, leeches or cupping-glasses may be applied in the immediate vicinity of the parts, and the warm bath or fomentations be then repeated. By these means I believe almost every prolapsus of the rectum may be safely returned, at least I have only once seen them fail, and then it was owing to the long neglect of the patient, from which the protruded bowel had become excessively thickened and indurated; and most probably firmly adherent.

202. Should any enlarged veins be found upon the inverted part of the prolapsus, the use of mild fomentations will be the best treatment; whether they remain in apparent health, or perhaps manifest a disposition to slough out in the manner already adverted to. (185.)

203. Tonic and astringent applications, as fomentations or injections, have been directed by

various authors for the relief of prolapsus ; but having often tried these means without material advantage, I now very rarely recommend them. Instruments for keeping up the parts are almost entirely useless.

204. I shall now point out what appears to me to be the best mode of curing this disease, by an operation. In the year 1802, I assisted Mr. HEAVISIDE in removing some hæmorrhoidal tumours. The patient was a gentleman who had come up from the country for advice. Three ligatures were applied, and the consequent inflammation was considerable. The benefit derived from the operation exceeded expectation, for upon his recovery, he mentioned that he had for some time been subject not only to the swellings now removed, but also to a protrusion of the bowel whenever he went to stool, but that since the operation, this symptom had entirely disappeared.

205. This circumstance struck my attention, and on seeing the observations subsequently published by the late Mr. HEY, of Leeds, the conclusion I had formed, as to the above case, was confirmed. Mr. HEY was consulted for a prolapsus ani ; and, finding the sphincter surrounded by a pendulous flap and other protuberances, he determined to remove them, “in the hope that the inflammation caused by the operation would produce a more firm adhesion of the rectum to the surrounding cellular substance,” so as to prevent any return of protrusion. His operation was successful, as Mr. HEAVISIDE’s had been ; for in each the prolapsus was cured. Mr. HEAVISIDE operated with the ligature, Mr. HEY by excision ; either mode gave the same result.

206. Here then we have at once the safest and best principle upon which to operate, for the effectual removal of a prolapsus of the anus, or rectum. The other methods of treatment are palliative ; but this may, almost in every instance, be

so modified as to effect its purpose with certainty and security.

207. As to the manner of operating, I greatly prefer the ligature : because I have known excision practised in several instances, and in each unsuccessfully, but have only found the ligature once partially fail ; although I have seen it used by Mr. HEAVISIDE, and as the cases shew, have used it myself in very many instances. Before operating, the bowels should be emptied by some cooling aperient. Provided, in the operation, any small projection or fold of integuments is found at the verge of the anus, it may be taken up, and will generally answer the purpose : if, on the contrary, the parts around the sphincter are in a perfectly natural state, the tenaculum may be passed through a small extent of the fine integument, at the verge of the anus, carefully avoiding the muscular fibres of the sphincter. The part raised is then to be encircled with a ligature, which being tightened completes the operation.

208. Where, independent of protrusion of the bowel, the parts surrounding the anus demonstrate extreme laxity, the degree of inflammation required for ensuring the perfect success of the operation will be greater. Here considerable experience and judgment are necessary to determine what the state of constitution will authorise, and what it would be hazardous and unnecessary to adventure.

In some such cases, it is necessary to operate with a degree of boldness ; and if one ligature cannot be with tolerable certainty calculated upon as likely to produce a sufficient degree of inflammation, it will be adviseable to apply two ; one on each side, or otherwise, according to circumstances.

209. This last consideration lately induced me to vary the mode of operating, and pass one or two silver pins, by means of a needle, through the parts intended to be included in the ligature, to insure

more perfectly the production of sufficient inflammation.*

210. It is necessary that the patient be kept quiet for a few days, while the effect of the operation is attended to. If little inflammation takes place, it need not be lessened; if too much, fomentations and the other proper means will moderate its violence.

211. Should the alimentary canal, and especially the lower bowels, have become irritable from the long continuance of the complaint, it may now and then happen that the operation will induce so extensive an irritation in the system, as to require medical attention. When this happens, there is no medicine comparable with opium, the influence of which, if kept up for a few days, soothes the patient's feelings into comparative repose and quietude, till the sudden storm is safely blown over.†

212. Where it may appear that the operation performed as above, has sufficiently answered its purpose previous to the spontaneous separation of the pins, the irritation induced may be at once effectually relieved, by dividing upon the pins the little loop of sloughing integuments, by which they are detained.

Where hæmorrhoidal tumours exist, in conjunction with prolapsus ani, the operation that cures the one, if properly performed, removes the other also.

213. From what I have seen, I may venture to assert, that whenever, in early youth, the bowels have been for many days obstinately confined, notwithstanding proper medicines, there will be reason to suspect the existence of intus-susception. This is a fact that cannot be too extensively known to parents as well as practitioners. Every medical person whatever considers himself competent to

* Case 57.

† Ibid.

direct for what appears to be mere confinement of bowels ; and, as the number is not small of those who apprehend no ill until either the evil itself, or its fatal consequences, stare them in the face, the above caution may not be without its use.

It is not always a pleasant duty to point out the expediency of taking a second opinion, yet it sometimes is a duty ; for in the few cases I have examined of this disease, the patient has, in every instance, died without any suspicion as to the real state of things ; while it may be presumed that, had the timely assistance been requested of some surgeon who had seriously applied himself to the subject, life might have been saved, or, at least, some exertion have been made to secure so desirable an object.

214. In some remarks annexed to a case of intussusception, published some years since, in one of our most valuable periodical works*, I suggested, that perhaps the cautious introduction of a large-sized bougie might prove useful in restoring the bowel to its proper situation ; but, from one examination I have since made myself, and from another at which I was present, I should now recommend the adoption of other means.

215. The first point is to establish the fact, which, in either of the instances I have seen, could at once have been determined by an examination per anum. The next great and essential object is to remove or diminish the constriction, which, in every case I have seen, has existed at that part where the inversion of the external bowel begins. This object must positively be achieved, even though with some risk. For its accomplishment, the warm bath may be tried, and by a proper apparatus, a quantity of warm water may be injected into the bowels. The belly must then be gently but diligently rubbed. If, in the course of this

* Edinburgh Medical and Surgical Journal.

operation, the mass of displaced bowel is found, by examining per anum, to have retired upwards at all, it may be taken for granted that some part of the intestine is already reduced, a conviction that will afford the best encouragement to perseverance. An additional volume of warm water must be rather forcibly injected into the rectum, and the frictions upon the abdomen repeated, until, by perseverance in the use of these means, the intruded bowel can no longer be felt in the rectum by the finger, or a large-sized elastic catheter carefully passed along the intestine ; and, in short, till castor-oil, or some other aperient, has produced a clear passage through the intestinal canal.

216. The above mode of operating, if well managed, may sometimes succeed ; but should it fail, something more must be done without loss of time, for I have already stated that the constriction is considerable, and must at all events be relaxed ; for if this is not done, the intestine cannot be returned, and consequently the patient must perish. Should then the above means fail, I would not hesitate a moment in trying myself, or recommending to others, the tobacco-fume injection as by far the most powerful application known, and as capable of such cautious adoption as to be attended with very little risk ; while in fact no other means that I know of, will afford, under these perilous circumstances, the least chance of success.

217. In performing this operation, if the patient be a young child, the tube of the apparatus being secured within the sphincter, one or at the most two compressions of the bellows may be made, and if more inflation be required, it must be completed with common air, care being taken to prevent the escape of the first, while the second is introduced.

If from this operation, followed up by diligent frictions upon the abdomen, some action and rumb-

ling in the bowels in the course of an hour be perceived, without any material impression upon the pulse or skin, one or two more puffs of fume may be ventured upon, as one or two hundred are sometimes borne without inconvenience by a grown person; and in this way, by repeating the same series of operations with precaution, and yet with perseverance, there will be reason to hope for a successful event.

218. I am aware it may be objected, that in some of the few cases that have occurred, neither the nurse nor the practitioner have been able to make an injection pass. That of course is a difficulty; and if there were no difficulties in the way, the case would be straight forward. The operator must or ought to be a surgeon, prepared to meet and capable of meeting every incident that can occur. A great deal, as relates to the event, will depend on the manner in which the operation is conducted. When the tube of the apparatus is introduced, pressure round the verge of the anus will frequently prevent, or at least impede the escape of the smoke, until it has produced some effect upon the nearest part of the bowel, after which it will be found very capable of making its own way.

219. The above practical suggestions are applicable to those cases in which there is no outward proof of the existence of the complaint: should the protruded bowel have fallen so low as to appear externally, the event of the case will still depend on the relaxation of the constriction in the superior part of the intestines. Under these circumstances the tube of the fume apparatus must be carefully and effectually inserted between the sphincter ani and the prolapsed bowel, so that the lower part of the rectum may still, as before, be the part inflated. The fume will thus be made to operate where its influence is most wanted, and produce the greatest possible benefit with the least

possible risk. Were the injection, on the other hand, made into the orifice of the protruded bowel, instead of being passed up by its side, the fume would go further than is necessary, and its influence on the constriction be diminished in proportion, while the impression upon the system might prove unpleasant or alarming.

220. I lately had an opportunity of examining a preparation showing a curious consequence of intus-susception. A young man, in *Feb.* 1813, after labouring under all the severe symptoms of ileus, with great danger to his life for eleven days, passed by stool a large mass of a solid substance, which proved to be a portion of intestine, partly inverted, measuring nearly thirty inches in length; after which the patient perfectly recovered.

The separated portion of bowel, which appears to be the lower part of the ileum, has evidently been cut off by ulceration at each end, a process that must have taken place at that part where the inversion commenced, in conjunction with the adhesive inflammation that fortunately succeeded in securing the remaining part of the bowels in their newly acquired relations.

221. Since the above remarks were first printed, I have met with two very interesting cases, in which, under judicious treatment, aided by the efforts of nature, the patients recovered, after the separation of extensive portions of the bowels strangulated in consequence of intus-susception. In one, a girl aged eleven, was attacked, *Nov.* 20., with pain, distention, and oppression in the bowels; quick pulse, dry skin, and thirst. A purge, an enema, and fomentations, were directed without effect; when, on the 22d, a decoction from half a drachm of tobacco was injected. Syncope, but no evacuation, followed; the pain alleviated, the vomiting continued. On the 23d, purgatives, and the tobacco injection, were repeated; still no evacuation. On the 24th, abdomen greatly in-

flated ; less pain ; the medicines remained. 25th, hiccup, and vomiting of fæces, but no proper alvine discharge. Countenance ghastly, pulse quick and feeble, and every sign of approaching dissolution. At seven p. m. a portion of the colon, cœcum, and mesentery, measuring thirteen inches and one quarter, was passed by stool ; with much black and foetid purulent matter, to the amount of six quarts.

From this period the patient progressively recovered, the strength improved, the appetite returned, the pulse became natural, and the bowels regular.

The portion of colon, cœcum, and mesentery, is perfect, and in the possession of Mr. BOWMAN, who has related the case ; to whose promptitude and ability the patient is indebted for her life, and the profession also for a statement full of practical instruction.*

222. Of the other case, a highly interesting abstract is published by Mr. RENTON. A man, after lifting heavy weights, was seized with violent pains in the left side of the abdomen. Various powerful medicines failed in procuring any passage through the bowels, and all the symptoms were approaching fast to a fatal termination, when, on the fourth day of the attack, very copious, bloody, and dark-coloured excrementitious stools took place, and the urgent symptoms declined. He continued to improve fourteen days, when he suddenly complained of great distress, and desire to expel something that required all his efforts. From this state he was suddenly relieved by the discharge of eighteen inches of ileum, with a considerable part of the mesentery, which must have been partially separated from the time the passage was restored, fourteen days before.

* Edinb. Med. Journ. vol. ix.

Much care was necessary to select those articles of diet that agreed with him. Simple and mild food was best. Animal food, or whatever disagreed, he found reach the seat of irritation in about three hours. Costiveness, induced by the complaint, required the almost daily use of laxatives, as confined bowels always produced attacks of pain, during his convalescence.

Wine, cordials, and malt liquors, were too stimulating, and although weak, he was obliged to avoid them.*

CASE 53.

Relaxed and Diseased Rectum ; for which the Operation was performed.

June 3. 1820. A young woman of heavy relaxed habit of body, was admitted into the Infirmary, with a large and extensive œdematous tumour, at the verge of the anus ; and a copious highly foetid discharge from the cavity of the bowel, as well as from the parts surrounding the opening of the gut. These complaints, with an irksome sense of weight, bearing down, and pain in the loins she had been subject to for the last four years ; having commenced soon after her marriage.

She said she had been three months in St. George's Hospital, had used various means and medicines, and was then sent out, the discharge somewhat, but the bearing down and pain in the loins not at all, relieved. She went into service for a few months, when her complaints increasing obliged her to come into the Infirmary.

The disease appeared principally, if not entirely, the effect of extreme relaxation in the inner membrane of the bowel, for there was no particular difficulty or pain in passing a large bougie along

* Edinb. Med. Journal, vol. xiii.

the intestine. She said she never had had any venereal complaint.

In the treatment, various astringent injections were directed and persevered in for many weeks, and they were certainly very useful. Bark with sulphuric acid was also directed, and assisted in the improvement of her health, lessening the quantity of thin ichorous discharge from within the bowel. Occasionally the fluid excreted was pale and colourless, sometimes yellowish, often of a red tinge, but always of an offensive smell. There was little doubt that quietude and rest during her stay in the Infirmary were also powerful assistants in restoring her health.

August 20. She was so much relieved, that she returned to service.

Feb. 4. 1822. She was readmitted, being much worse, and obliged to give up service.

Feb. 9. A lotion, containing a scruple of the nitrate of silver, in four ounces of water, was first tried, as an injection; but it did no good. Desirous to afford her every chance of relief, and satisfied that no dependance could be placed on astringent applications, I was still disposed to view the complaint as the effect of extreme relaxation. Under this impression I determined upon the removal of two of the external tumours by ligature, hoping that inflammation thus induced might produce a twofold advantage, restoring tone to the verge of the anus, and extending the same salutary impression for some distance into the bowel.

March 2. The operation performed was very acutely painful.

March 5. A bad night followed the operation, but the succeeding ones were good. No irritation about the bladder, or elsewhere; and although previously the sanious and bloody discharge from within the anus was sufficient in quantity to soil several napkins in a day, there had been none since.

March 6. In the evening the last of the ligatures came away; and the following morning, with a stool, a considerable quantity of a fluid, similar to the old discharge, came away from the bowel, as if the sphincter, acting more powerfully than before, had prevented its escape.

March 12. Much better; the discharge not half the quantity it was before the operation, and of a more pale colour.

April 10. The ulcerated parts healed, and all complaint very nearly gone. The discharge from the bowel she said was not half a tea-spoonful in the twenty-four hours now, although when at the worst, it must frequently have exceeded a tea-cupful in the same period. In her illness, she could neither stand, sit, or walk, without suffering the greatest distress; but was now able to do either with comfort, without the least pain, and for any length of time she pleased.

April 13. She left the house, in every respect perfectly recovered.

CASE 54.

Prolapsus of the Rectum; for which the Operation was performed.

M. R. complained in *October*, 1819, of some painful swellings at the verge of the anus. They first appeared during a very severe cold, from sleeping in a damp bed about a twelvemonth before. In *September*, 1819, she was exposed to much fatigue from very laborious work, when in straining to pass a costive stool, a very painful protrusion of the bowel first took place. The prolapsus generally returned whenever she voided a motion, but most extensively when the bowels were confined; although gentle pressure in the horizontal posture always enabled her to return it again.

October 23. I found on examination, a cluster of hæmorrhoidal tumours, one of the largest of

which was secured by a ligature. The parts fomented, the consequent inflammation was moderate. The ligature fell off on the sixth day, and within three weeks the ulcer left by the ligature was healed, and the complaint, to her great comfort, perfectly cured. She was, however, allowed to remain in the house for several weeks afterward, to enable me to determine that the complaint was permanently removed.

CASE 55.

Prolapsus of the Rectum; for which the Operation was performed.

A. S., aged sixty, applied for assistance in the beginning of *August*, 1819. She said that about a twelvemonth before she had a severe disorder in her bowels; violent relaxation, with bearing down, and voiding of blood. During this attack, which continued five weeks, the heavy straining first caused a protrusion of the intestine, which suddenly came down to the extent of several inches, with distressing pain, and a heavy dragging sensation at the loins. She lay down, and pressed it back as well as she could; but her motions, frequent as ten or twenty in the day, always brought it down again.

In the following *April* she had a troublesome diarrhœa, in which almost every kind of food, with sudden griping pains about the navel, past quickly through the bowels; producing much bearing down, and more prolapsus.

For the first fortnight of my attendance upon her she had frequent thin stools, occasionally tinged with blood. The intestine examined per anum was relaxed, and felt as if the upper had fallen down into the lower part, the whole being thrown into loose folds. On straining to pass a motion, she voided little else than a thin serous fluid, but complained much of her usual dragging and

gripping pains. The bowel was now down, and in numerous concentric folds or plaits formed a tumour as large as half an orange; it was however easily reduced. She was ordered to take regularly the decoction and tincture of bark; an injection containing eight ounces of the decoction of oak-bark, with one ounce of alum, was also directed to be thrown up twice a-day.

August 18. The pains in the back were much relieved, the bowels more regular, and the appetite improved; she even thought that the protrusion of the bowel was much diminished. The medicines were continued.

September 14. The disordered state of the bowels greatly relieved, but after a motion had been passed, I found the prolapsus just the same as ever. A part of the inner membrane of the gut, just within the sphincter, was therefore raised by the tenaculum, with the intention of applying a ligature; but the weak pulpy surface gave way in the attempt. I then passed the instrument through another part of the same membrane, including a small portion of the integument external to the verge of the anus. This was tied firmly, and the patient put to bed.

Little inflammation followed, and the ligature dropped off on the third day. For a few days, her bowels were relaxed, and a trifling degree of protrusion was perceived; her bowels after this acted more regularly, and she had no subsequent return whatever of the prolapsus.

CASE 56.

Prolapsus Ani; for which the Operation was performed.

AN old man, upwards of 70 years of age, applied for relief, *March 3. 1822*, on account of a swelling, which on examination I found to be a partial prolapsus of the rectum. The protruded bowel, it appeared, rarely formed a tumour larger than a

small chesnut. Many years subject to fulness about the verge of the sphincter, about eight years back a swelling formed, which inflamed, suppurated, and healed; since which the weakness which induced the prolapsus became more and more apparent, producing latterly much distress and pain, whenever he passed a stool, and often attended with bleeding.

His bowels habitually relaxed, sometimes disturbed him repeatedly in the same night; particularly when he took cold, which, he said, always affected his bowels.

April 2. A very free evacuation of blood per anum had unloaded the parts, which now were not protruded to above half their former size; but as he was very desirous to get rid of his infirmity, I passed a tenaculum, and included in a ligature a small part of the tumid integument, and inner membrane of the prolapsed intestine. The pain was for a minute acute; but very quickly subsided.

April 5. The ligature came away. The parts little disturbed, looked clean, and well. The bowels still too relaxed, I directed him a mixture of decoction of bark, with aromatic confection.

April 9. Doing in every respect well. The little ulcer healing. The bowels now perfectly quiet through the night, and moved once each day.

May 16. The parts long since healed. The action of the bowels now regular and healthy. There had been no return of protrusion or bleeding since the operation; and, to use his own words, he was now "pure and hearty."

CASE 57.

Prolapsus of the Rectum; for which the Operation was performed.

THE following statement, as regards symptoms, is that of the patient, a gentleman, aged 50; who

consulted me in *January*, 1822; putting into my hand the subjoined account of his complaint.

“ Whenever I go to the water-closet, the rectum always falls considerably, and the fæces in most cases pass with much difficulty. The first part will at times seem hard, and from the manner in which it comes away, as if it was the remains of the last stool; after which, from long sitting, a number of small parts will come away, not costive, but ragged and irregular, some portions of it not so thick as my little finger, at other times regular, but these parts will afterwards come away by degrees, apparently as if they lay in the enlarged part at the anus, falling away without the parts appearing to possess any power of action. This will often occur after sitting half an hour. Wind passing through the bowels when on the water-closet, will often produce the above-described partial evacuation. At all times I am obliged to pass back the protruded parts, and if I can manage to go to the water-closet in the night, and to bed afterwards, in most cases the parts remain up, and I am perfectly well and free from any kind of uneasiness the next day. But if obliged to go in the day I am quite unable afterwards to go about, from the parts falling, which brings on a strong desire to evacuate, and it is often with the greatest difficulty I can contain the fæces till I get to the water-closet. This distress, with the parts falling, will occur five or six times a day, until they ache and become so very tender by so repeatedly being passed up, that it is most painful. The protrusion never less than the size of an egg, often larger. Three or four times a year, I have for seven or eight days together, voided with every stool a quantity of blood, near half a pint at once, at times more; from which I have not experienced any other inconvenience than feeling weak, which I have soon recovered after it has stopt. I have often found evacuations more considerable when in the country

for a day ; but if in the day-time I am always confined, as before described, totally unable to move about. If I sit for two hours afterwards, in ten minutes after I begin walking, the parts will fall. The complaint has existed nine or ten years, and arose by insensible degrees.

“ I wake from custom about four o’clock, and whether I feel an inclination to go to the water-closet or not, I generally endeavour to get a motion, which I mostly do, little or much. I can, from long affliction, mostly tell if the motion I have will be attended with uneasiness in the day. I have always been used to an active life, both body and mind fully employed.

“ When at stool, the protruded part will often seem as if inflated, and a piece of fæces will drop away. At times when I am passing up the parts, they will show an inclination to assist themselves, but often otherwise, in which case the parts appear to go up in lumps.”

Jan. 14. 1822. This gentleman called, and shewed me a protrusion of the bowel large as a hen’s egg ; and this was always incurred, frequently to a much greater extent, by passing a motion, or standing for half an hour. I directed him some bark with a very gentle aperient ; this regulated his bowels, but did nothing more.

April 10. 1823. This gentleman acquainted me he could now spare time enough to go through the operation. Several small hæmorrhoidal tumours now existed at the verge of the anus, in the absence of protrusion. Very anxious for the success of the operation, and impressed with a conviction of the distressing extent of the complaint in this case, and also recollecting an instance somewhat similar in which my success had been imperfect *, I determined to vary the mode of operating.

* Case 70.

Having procured a curved needle, carrying loosely, in a continued line, a silver pin, I had the parts brought forward by the tenaculum, and then passing the needle so as to include in depth and extent as much of the skin and cellular membrane as appeared sufficient, I drew it through, and left the pin. The needle was in the same manner passed upon the opposite side of the sphincter. A strong ligature was then passed round behind the ends of each pin, and tied. The pain from the operation, was that incident to the constriction of the parts. In the evening a large tumour of bowel had by the violent tenesmus been protruded, and could not be returned. Anodyne and warm poultices alleviated pain, but an irritation to cough was made worse by it the next day.

April 13. All acute pain had subsided into a dull aching, and sense of soreness in and about the parts. The first two days a great flow of thin ichorous fluid, tinged with blood, from within the bowel, took place; after this it appeared more confined to the seat of the operation. Poultice continued.

April 14. A table-spoonful of castor oil, and after it some warm tea, induced a very copious stool, exceedingly bilious and foetid, with much less distress than had been supposed possible. On examination it was comforting to see not the least additional protrusion had attended the action of the bowels, but in fact the part previously protruded was slowly retiring. This night, for the first time, he slept well, with much less local pain.

April 16. All night in great pain, in and about the parts. One relaxed, small, bilious motion had passed. From an idea that the cough was aggravated by it, he had omitted to take the anodyne directed for him.

April 18. The local pain and general distress induced me to draw out the pins. The protruded part of the bowel was lessened to one-half its former

bulk. As he complained much of the weight and relaxing influence of the poultice, I dressed the parts with light slips of lint dipped in fine oil, and tucked round them. In the evening, however, the local pains were very much increased in severity and extent, along the course of the bowel internally, and about the lower part of the intestine; the protruded bowel, shrunk and partially dry, appeared disposed to slough. I again enjoined him to take a composing draught at bed-time, which he had still omitted.

April 21. Yesterday and to-day very low, anxious, and ill. Acute pains shooting in various directions, in the course of the great intestines; but no distinct tenderness on pressure. He had still taken no anodyne, although one had been directed. In the evening I found him so ill, that I acquainted his family, if he was not better in the morning, I should request his physician might visit him; and in the mean time waited till I saw him take a composing draught.

April 22. On visiting my patient, had the comfort to find I had struck the right chord. The sense of internal pain, and distress, much relieved. Some ale, ordered last night, had also agreed well. To avoid the serious risk that I now saw plainly might attend his omitting the opiate, he was told he must take the draught ordered, at regular intervals, to improve his appetite. By this mode of explaining it, the difficulty was overcome; he had now no idea of opium, but took his medicine punctually, and the system thus kept under the anodyne influence, recovered itself with a rapidity not to be believed.

In no instance, since the operation, had the action of the bowels induced the least protrusion. The sloughy surface of the protruded part of the bowel, having thrown off thin films, had become clean, granulated, and partly healed over.

The discharge from the bowel, for several days very copious and sanious, gave place to a more offensive fluid, and now it had the appearance of a more moderate secretion of healthy pus. The protruded part of the gut shrinking very fast, and nearly healed.

May 3. So much better, and so nearly well, that I allowed him to pay a visit, for a day or two, to his country house, at Enfield. The bark with an aperient was now again directed; and the parts dressed with a solution of the nitrate of silver.

May 13. Not inconvenienced by his late journey, but in health quite re-established. On examination the internal surface of the sphincter, as far as could be seen, appeared excoriated, and he complained of a sense of soreness, with still a considerable discharge of serous fluid from the bowel. Considering the powerful influence of the bals. copaiabæ in restraining puriform discharges from the urethra, I now directed it for him.

May 14. The medicine had been twice taken, and there was scarcely one-sixth part the quantity of discharge from the bowel. There had been one copious easy stool. I passed into the sphincter a dossil of lint, wetted with a solution of seven grains of nitrate of silver in an ounce of water.

The balsamic mixture, having perfectly answered its purpose, was in two or three days laid aside.

May 18. All external tumour and all internal discharge, and pain removed, in short every complaint gone, I took my leave.

May 27. Was sorry to hear he was much troubled by heavy pain, tension, and soreness all over the abdomen, and pain at the bottom of the back. He had taken castor oil, which operated very badly, for although obliged to visit the water-closet four times always with strong desire, scarcely any thing came away. This attack, he thought, might have partly arisen from powdered sugar-candy and spermaceti, of which he had taken some dessert

spoonfuls for a cough. Recollecting the peculiar manner in which the smallest piece of fat always deranged the bowels in a gentleman who had consulted me the year before *, I directed an infusion of senna, with sulphate of magnesia, and tincture of senna, which succeeded in dislodging the indigestible spermaceti; and by procuring a few free and copious stools, completely removed — soreness, tension, and other unpleasant symptoms, leaving him perfectly well.

CASE 58.

Hæmorrhoidal Tumours ; with Prolapsus.

May 31. 1821. I was consulted by a gentleman, long subject to complaints that he attributed to a loss of tone and action, in the bowels. Indeed piles and costiveness had both been distressingly troublesome for nearly five years. For eighteen months he had rarely been able to pass a motion, without medicine. During summer he had used the cold bath, which never failed to bring on immediate action of the bowels; but in winter this expedient being less pleasant, was laid aside.

He observed his habit was becoming robust, with a fulness of blood in the head, that had frequently required cupping, and leeches. The stomach and abdomen constantly uneasy, tense, and as if loaded. His stools, when induced, were rendered in hard lumps, or alternating with laxity. For the last year, the hæmorrhoidal tumors had allowed him no interval of ease, either from distress, or discharge. The former often obliging him to leave company, or business, at a moment's notice; the latter generally thin and white, sometimes bloody, frequently rendering it necessary to change his linen several times in the day.

On examination I found a large but relaxed

* Case 11.

tumour to the left, and a smaller one to the right, of the sphincter ; between which lay a broad double fold of the inner membrane of the gut ; the whole bathed in a copious excretion of a thin, offensive, bloody, serum.

By the use of a tonic and aperient medicine for a few weeks, with cold spring water locally, this gentleman's health was astonishingly improved.

June 15. The action of the bowels, by a very gentle impulse, perfectly regular. The sense of distressing fulness in the head, and about the lower part of the rectum, quite relieved. The medicines, with some alteration, were directed to be continued for a fortnight longer ; and he took his leave.

Jan. 22. 1822. My patient called and acquainted me he was now so well in health, by the assistance of the above medicines, that his friends were perpetually congratulating him upon the change, and improvement, in his appearance.

CASE 59.

Unusually large Prolapsus of the Rectum ; with Intus-susception and supposed Stricture.

May 10. 1821. I was visited by a gentleman of high rank, from childhood subject to a sense of fulness at the anus whenever he went to the water closet. He also had reason to believe there must be something wrong within the bowel ; whether contracted, or not, he could not determine ; but he felt frequent pain and difficulty within the gut, and when his stools were consistent, they were compressed, flattened, and smaller than formerly.

May 16. Preparatory to examining, I distended the bowel by injecting some warm water. At first he observed, " It does not pass ;" by persevering, however, with a steady pressure upon the rod of the injecting syringe, I succeeded, and threw up a sufficient volume. I then introduced the largest

silver ball probe, but could not at once pass it beyond a few inches, pressure against the yielding obstruction, exciting starts of irritation at the neck of the bladder, with desire to pass water. By repeated gentle endeavours, however, the parts yielded, and the instrument passed with perfect freedom to the extent of eleven inches, where its further progress was impeded, and uneasiness excited, merely by its pressing against the side of the bowel. In withdrawing the instrument, the bowel resumed its former position, the ball was brought down again with some hesitation, and when removed, and the finger introduced, the upper part of the intestine fallen down and formed into transverse folds, was felt distinctly within the lower, which circumstance had occasioned the ambiguity and difficulty.

May 18. The parts examined, just after leaving the water closet, were found to form a prolapsus much larger than the largest orange; turgid, and dropping with blood. This was what always occurred, though now having taken place to a greater extent than common, there was some difficulty in returning it; in general it was easily reduced.

The opinion I gave upon this case was, that from permanent relaxation, and want of tone, in the coats of the lower bowel, the upper part was in the habit of subsiding or falling down into the lower portion, forming an intus-susception; and this mass was perhaps occasionally the same which was protruded through the sphincter, although the very turgid state of parts prevented this point being determined, without giving unnecessary pain. This derangement in the position of the parts of the bowel while within the sphincter, had given rise to the idea of stricture, of the actual existence of which there was happily not the least proof.

As the only means for getting rid of the irksome pains, and frequent distress, incident to this complaint, I advised the performance of the operation;

stating at the same time, that I could see no absolute necessity for its being done directly, should it be inconvenient to remain two or three weeks in town; although his complaint might at any time become worse, and assume a very serious aspect.

With a view to improve if possible the state of the parts, some tonic medicines were so directed as to keep his bowels in a habit of easy regular action; and as upon consideration, he deemed it prudent to postpone the operation for the present, this gentleman soon afterward left London.

CASE 60.

Prolapsus Ani; for which the Operation was performed.

C. P., aged seventy-eight, had been for two years subject to prolapsus ani, when he was admitted into the infirmary, Oct. 4. 1819. The protrusion commencing without obvious cause, was at first occasional, but soon more frequent; latterly it seemed to have induced repeated attacks of looseness, a complaint he never had before.

When admitted, his bowels were relaxed. On examination, several small folds of integument were found at the verge of the anus. The prolapsus, when it occurred to its usual extent, included about four inches of the lower end of the gut.

Oct. 5. The largest of the small folds of skin external to the sphincter was included in a ligature. The operation gave but little pain. On the following day, the surrounding parts were very tumid and heated. When he passed a motion the protrusion returned, to about one-fourth its usual quantity. Fomentations were directed to be applied.

Oct. 10. The ligature had fallen off, and the tumefaction quite subsided. He had three motions this day; the verge of the anus was just perceptibly prolapsed on one, but on neither of the other occasions.

Dec. 20. There had not been the least recurrence of the prolapsus, the parts having completely and permanently recovered their tone.

CASE 61.

Prolapsus Ani ; for which the Operation was performed.

Nov. 19. 1820. I was applied to by a lady on the behalf of her little boy, a child of six years old ; who for some months had been troubled with a distressing protrusion at the anus, whenever he had a motion, on which occasion he generally had pain, and bleeding. Examining the parts after he had been desired to make some efforts, as in passing a stool, I found a prolapsus apparently the consequence of relaxation and œdema of the highly vascular inner membrane of the bowel ; the quantity thus pushed down being in its distended state as large as a cherry. It was returned with facility. On enquiry, it appeared that the bowels, generally regular, were sometimes relaxed.

Nov. 20. With considerable difficulty I was enabled to take up a part of the relaxed margin of the anus, which, when tied, formed a tubercle the size of a small garden pea. No apparent inflammation, or only the smallest perceptible redness upon the skin, directly surrounding the ligature, followed. In three days the ligature dropped off, and in four days more the little spot was perfectly healed.

In this instance, the first results of the operation were somewhat different from what I have observed in the adult, although the event was the same.

Dec. 3. All the symptoms were much better than before the operation ; the prolapsus, formerly extremely painful, was now not at all so ; formerly it recurred with every action of the bowels, occasionally several times in the same day, now under regular action of the bowels it appeared only once in three or four days ; formerly larger, it was now

much smaller. It formerly used to bleed, but this character it permanently lost from the day on which the operation was performed ; it used also to remain down till pressed back again ; it now returned spontaneously.

Jan. 29. 1821. Upon enquiry, I had the pleasure to hear that the complaint was completely removed ; the child, for the last six weeks, having had his bowels carefully and watchfully attended to, without the least appearance of any return of the protrusion.

CASE 62.

Prolapsus of the Rectum ; for which the Operation was performed.

March, 1821. A house painter, aged 65, complained of a “ falling down of the gut,” to which he had for the last nine or ten years been subject. It always came down upon passing a stool ; and frequently upon exposure to fatigue. Desiring him to bear down, I found the quantity protruded equal to a small apple. He had suffered repeated attacks of the painters’ colic, most effectually relieved by castor-oil ; and he thought this disorder might have led to the prolapsus. The two smaller fingers of each hand were contracted, and the power of motion in them lost.

March 13. For the cure of his complaint, I included a part of the relaxed integument on the left of the anus, in a ligature ; and after the second day applied a poultice. The pain moderate, the ligature separated on the fourth day.

March 24. There had not been the slightest return of protrusion since the operation ; neither was there any subsequent recurrence of the complaint.

CASE 63.

Prolapsus of the Rectum ; for which the Operation was performed.

May 6. 1823. I operated upon a man, aged 47, for a prolapsus of the rectum, with which, in the form of a tumour, the size of a small apple, he had been occasionally troubled for many years. Several hæmorrhoidal swellings were also present.

The operation was performed precisely as in case 57 ; nothing remarkable occurred. There was very little pain after the second day. The pins, and ligatures, fell off on the sixth day.

May 13. Found the ulcers clean, healthy, and healing.

May 17. The parts just healed, and without any return whatever of the complaint since the operation.

CASE 64.

Prolapsus from Bruise ; for which the Operation was performed.

A SAILOR, aged 30, came into the Infirmary, April 7. 1821. He said he was on board the Valiant 74, at Plymouth, in 1805, and having plenty of prize-money, and able to carry his three watches, he was a little groggy ; and slipping, fell from the main deck, down the fore-hatch ladder to the lower deck, bumping at every step. Next morning he felt bruised, and in passing a stool found a swelling, which was the bowel coming down to the extent of four or five inches. He was carried to the surgeon, who returned it. Since this, the complaint had often returned, especially after intoxication.

A few days previous to his admission, sitting some hours in a damp boat, rendered it unusually distressing ; and he, with difficulty, walked some miles to town, when he came into the house.

On examination, an œdematous tumour at the anus, surrounded two large folds of the inner membrane of the bowel; the latter were livid, and apparently disposed to mortification. Rest, and fomentations, for the present, were directed.

April 14. The largest of the œdematous tumours, at the verge of the anus, was taken up by a single ligature, which came away on the fifth day.

April 24. He said he was very thankful, and “a better man than for many years;” for that he now had one or two motions daily, without the least return of prolapsus, at any time, since the operation.

May 1. He was discharged, perfectly recovered.

CASE 65.

Prolapsus of the Rectum; for which the Operation was performed.

May 25. 1822. A gentleman, about 30, a surgeon, came up to me from near Bristol, for a very considerable protrusion of bowel, which always came down on passing a motion, and he supposed had existed from birth, or at least certainly as long as he could recollect any thing. With the kind assistance of Dr. KERRISON, I on the following day performed the operation. He was previously requested to sit ten minutes on the night-chair; a part of the protruded mass of bowel which equalled a goose egg was returned, and one hæmorrhoidal tumour then tied on the left, and another on the right, side of the anus. He bore the acute pain from the operation, extremely well.

June 3. Went yesterday, in a carriage, from Bond Street, where he lodged, to see some friends, at the other end of Sloane Street, and in the evening he had walked back, as he said, without inconvenience.

June 4. The ligatures both separated, and all tumour gone, he was so well, that having taken his place to return home by the Mail, he took leave of me, and left London the same evening.

In this case there had not been the slightest return of protrusion since the operation.

July 10. I received a letter with a most satisfactory report.

Oct. 5. He reported as follows: "The only inconvenience I have felt since the operation, is a little trifling degree of irritation, and slight tenesmus; so trifling, and seldom, that I should not have mentioned it, had you not particularly desired me so to do."

July 27. 1823. I had the pleasure to receive a letter from this gentleman, which concluded in the following satisfactory terms. "It is with much pleasure I acknowledge my great obligation, for the permanent benefit I have received in my health at your hands, which has rendered my existence comfortable."

CASE 66.

Prolapsus Ani; for which the Operation was performed.

A GENTLEMAN, aged forty-three years, consulted me *May 10. 1820.* His complaint was a continual uneasiness and irritation at the anus. He had been subject to piles, but apprehended the principal complaint was of a distinct nature. Having passed several years in warm latitudes, he had suffered from hepatic inflammation; and since this period had always been attentive to his bowels, which were regular. There was generally, notwithstanding, a degree of fulness or protrusion at the anus, in passing a motion.

Examining the verge of the anus, I found several relaxed folds of skin, partially loaded with œdema; within these lay a small protruded portion of the

inner membrane of the bowel. On enquiring where his uneasiness originated, he said he could touch the spot, and instantly laid his finger upon the projecting point of the inner membrane. By straining a sufficient extent of the lower part of the gut appeared, to prove the existence of prolapsus; not demanding attention from the quantity of the protrusion, nor from the incidental hæmorrhage, so much as from the irritation constantly rendering him unable to attend to business with any comfort, and frequently exposing him to severe pain in walking, riding, or even sitting still. I requested him to take an opening draught that evening; and on the following morning performed the operation.

The tenaculum was passed through the fold of skin on the left side of the anus, upon which lay the relaxed inner membrane, the point of the instrument being so brought out as to include as much of the mucous membrane as possible. A single ligature was applied, and gave very little pain. The following day, he said he felt some pain, and a sense of numbness down the inside of the left thigh. Regarding his habit to be little disposed to inflammatory action, the parts had been merely covered with some cerate upon lint, and he had been requested to keep quiet.

On the third day the ligature dropped off, the small wound was poulticed for a few days, and then dressed with a weak solution of the nitrate of silver.

On the tenth day, the wound was healed, and he found himself able to sit, or walk, with more comfort than for a long time before the operation. The occasional application of an aluminous lotion, and the daily use of the bidet with cold water, were directed.

On the fourteenth day, I told him there was not the least objection to his returning to business, and took my leave.

In *March*, 1821, I had the pleasure of hearing that this gentleman had enjoyed good health since the operation ; without the least tendency to any return of the complaint.

CASE 67.

Prolapsus of the Rectum, with Hæmorrhoidal Tumour ; for which the Operation was performed.

April. 8. 1819. A man, aged 52, a helper in stables, requested my advice for some painful tumours at the verge of the anus, sometimes aggravated by a degree of protrusion of the bowel, in passing his motions. On examination, I found several sanguineous hæmorrhoidal tumours, painful and livid. I told him the best advice I could give him was to undergo an operation, which would probably confine him only for a few days ; by which he would not only get rid of the one complaint, but the other also ; for that if neglected, the protrusion of the bowel would not only continue, but most likely go on from bad to worse. He said, however, that he did not choose to undergo any operation ; and was therefore ordered a cold lotion, and some medicine ; and went away.

May 25. 1822. Found him waiting for me, looking most wretched. Greatly reduced by pain and suffering, very contrite, and above all heartily and humbly desirous of having his complaints cured. I now found large hæmorrhoidal tumours, but a much larger swelling from a mass of bowel constantly protruded ; attended with considerable irksome pain, and a constant profuse discharge. The bowels not requiring previous attention, I immediately applied one ligature to the largest hæmorrhoidal tumour, on the left side ; and another to a second tumour on the right ; including a small part of the protruded bowel. The pain from the operation was at least ten times more severe than it would have been, had it been done

when I had formerly recommended it. During the night, abdomen very tender; notwithstanding an opiate given at bed-time, and the application of poultices.

May 28. Doing well. Ordered a bark mixture, combined with an aperient.

May 31. To day the last of the ligatures came away. Poulticing still continued.

June 20. All tumour gone, all discharge ceased, the little ulcer quite healed; without the slightest return of the protrusion since the operation. Being now perfectly well, he returned thanks, requested to be discharged, and was accordingly sent out.

CASE 68.

Large Prolapsus of the Rectum reduced, subsequent to Inflammation and Adhesion.

Saturday, July 27. 1822. A coalheaver, aged 42, was admitted into the house, with a very large and painful protrusion of the rectum. On examination, I found the mass of prolapsed bowel, at least three times the size of a hen's egg, of a dull brown colour, was apparently sloughing. He said that it first came down on the preceding *Monday*, while pitching some heavy sacks of coals, which brought on great pain in the part. After this, employed to chop a quantity of wood, it became so large, painful, and sore, he could scarcely finish his work. In the hope it would subside by the following morning, he went to bed; but passed a sleepless, painful night. His bowels acted daily, but with great pain, the protrusion remaining. As the most persevering and careful endeavours to reduce it were fruitless, fomentations and poultices were directed. *July 29.* Washed with warm water, and examined, the whole surface of the tumour, except the central opening of the gut, was sloughing away in thin films. In some points, this process had involved several small veins; in others

small masses of the mortified inner membrane, and the œdematous cellular membrane, hung in macerated shreds. With the assistance of a napkin, but not without considerable acute pain, I now nearly succeeded in pressing it through the sphincter; but it returned. I therefore passed a finger, oiled, into the central opening of the bowel, and then pressed the surrounding parts up with the napkin, and in this way, by degrees, reduced the whole. The pain incurred by this operation was very great, but in a quarter of an hour had nearly subsided.

July 30. There had been no return of protrusion, even when he passed a stool. The parts were still painful, but comparatively easy.

The pain which attended the protrusion of the above tumour, and the difficulty experienced in its reduction, were such as to render it clear a degree of inflammation had taken place, producing adhesions of the parts, in their new position; an opinion borne out by the acute sensations he described during the reduction, which, he said, were like pins and needles tearing and running through him; exciting agitation, and trembling. I never observed these symptoms in any of many very large protrusions of this kind, except the parts had previously suffered from inflammation.

Aug. 7. Bowels regular, and rather lax, but not the least return of the prolapsus. The sense of soreness, during the passage of a motion, quite gone. Feeling himself perfectly recovered, he begged to be allowed to go out, and was therefore discharged.

CASE 69.

Prolapsus Ani ; with Abscess.

Sept. 22. 1820. A middle-aged gentleman requested me to call upon him. He said he had long been incommoded by what he believed to be the

piles ; frequently bleeding, but more frequently producing pain and irritation. These circumstances had for two or three years past induced a protrusion of a part of the bowel on going to stool, especially if costive, to which state he was very prone, and had been all his life. He said he had long intended to consult me, and believed he had neglected it too long.

On examination, the tumours were small, but the laxity of parts great. He complained of tenesmus, bearing down, with a sense of heat in one part ; but as I could neither perceive redness, tumour, or softness, distinctly at any particular point, he was requested to sit for a few minutes on the water-closet, to determine the usual degree of protrusion. The experiment brought down a quantity equal to half a large sized orange ; this I returned, and on examining the cavity of the bowel, found it apparently healthy, but very much relaxed.

I advised him to have the complaint removed by the means I had adopted in other cases ; he proposed the operation for the following day, and was therefore directed an opening draught to be taken at bedtime.

Sept. 23. The medicine had operated copiously, creating a new kind of irritation and additional pain, till just previous to my visit, something appeared to have burst, discharging freely to his great relief. On looking at the part, a small opening was found, and it was clear both to Mr. HEAVISIDE and myself, that the only course was at once to lay open the abscess and sinus, if one existed, and postpone the intended operation ; this, therefore, was done, the part was dressed, a warm poultice applied, and the patient put to bed.

Sept. 26. The parts not much inflamed, poured out an excessive quantity of thin, ichorous, offensive discharge. The pulse high, but the spirits very low. Bowels confined and flatulent, bringing down a small part of the lower end of the intestine, in the

present weakened state of the sphincter, even while lying down. On examining, found the protrusion was upon the left side of the gut, and that on the left or inverted margin of the bowel were several enlarged and varicose veins, which I touched with a probe; they were partly buried in the substance of the gut, and partly exposed by absorption at certain points of the mucous membrane.

Oct. 2. For the last two days, much improving under the decoction and tincture of bark with the sulphuric acid, after having been several days labouring under a harassing and painful gouty attack in the right great toe; the skin prone to excessive relaxation, and the whole system the same; a thin ichorous offensive discharge poured out from the bowel and anus, in so excessive a quantity as to require a folded sheet laid under him, changed two or three times a day. Pulse weak, 108, tongue clean and moist, bowels tolerably regular. He was now taking the bark, with port wine, and the most nutritious diet.

Within the last few days I had observed several of the exposed varices, bathed in the unhealthy discharge, gradually lose their consistence, loosen, and finally slough away; leaving the hollow space below purulent, and tolerably healthy. His health, since taking the bark, was so much improved, that he was again able to stand upon his feet without becoming faint.

Oct. 4. Perspiration less excessive; discharge less abundant, and much less offensive.

Oct. 16. Health and strength quite restored. Pulse down to 80, and strong. The wound from the operation long since healed. Finding the surface from which the varicose veins sloughed out had, from constant exposure to the heat and moisture, been prevented healing, I directed that a saturnine lotion should be applied upon folded lint to the part; which thus became cool, comfortable, and quickly healed. The protruded part of the

bowel by degrees shrunk down from the size of a walnut to that of a scarlet bean, gradually assuming the colour and other characters of common integument, from the constant exposure to air. Had I not watched it with continued attention, I could not now have determined it to have been a part of the bowel.

The medicine was now changed for a combination of tonic and aperient, which in a few weeks enabled the bowels to perform their duty with a spontaneous regularity, to which he assured me he had been a stranger for very many years.

Oct. 25. The protruded part of the bowel perfectly healed, had precisely the same appearance with the other parts of the skin. With the exception of the small portion just mentioned, there was no return of prolapsus subsequent to the operation; although, from the partial division of the fibres of the sphincter, the muscle must have been somewhat weakened.

It appears, then, that even the trifling degree of inflammation excited by the operation for fistula, may prove sufficient for the cure of a prolapsus.

Having once felt apprehensive there was contraction of the bowel, he requested me to set his mind at ease upon this point, previous to taking my leave. I therefore first injected a quantity of warm water, a practice I have in many instances found peculiarly convenient, and perfectly effectual for removing the difficulties, of which other practitioners have complained, from the folds into which the bowel is sometimes thrown, obstructing the progress of the instrument; and under this quiet distention, I passed a silver ball an inch in diameter, to the extent of thirteen inches along the canal with the greatest freedom, and without exciting the least sense of uneasiness; proving the rectum to be in every respect sound.

CASE 70.

Prolapsus of the Rectum ; for which the Operation was performed.

A GENTLEMAN, aged 38, came up from the country to consult me for a prolapsus ani, *Aug.* 16. 1820. He had been subject to it for several years ; but knew of no cause, his bowels being always tolerably regular. Two years since he had consulted a surgeon of the first eminence, who had directed him to wash with a decoction of oak-bark, and to inject cold water into the bowel before going to stool. The one seemed to relieve the bleeding to which he was subject, the other facilitated the transit of the motion, but neither removed the prolapsus. In *July*, 1820, a professional friend had performed an operation, by applying a ligature, the object of which was to check hæmorrhage ; but it produced no material effect upon the prolapsus. To explain this circumstance, it may be observed, that the operation gave him no pain whatever at the time, and very little afterwards ; that he had a motion the next day, without the least pain or uneasiness, and that on the second day the ligature came away.

Aug. 17. I performed the operation, assisted by Mr. HEAVISIDE. In the examination, a little straining brought down the largest mass of prolapsed intestine I had ever seen. It formed a tumour larger than the largest orange. This, he said, was the occurrence of every day. The tumour being reduced, the left side of the verge of the anus presented a considerable enlargement, from a relaxed fold of integuments, puffed up with œdema, and replete with enlarged and varicose veins, visible through the skin ; and on the margin next the sphincter lay a broad fold of the vascular inner membrane of the bowel. The tenaculum passed through the basis of this tumour, a strong ligature

was so applied as to include the principal part, together with the fold of the inner membrane. The tightening of the ligature gave considerable pain at first, but by quietude, the reclined position, and the application of a poultice, it was soon rendered easier.

The day after the operation the pain was uniform, and rather severe, but on the following morning (*Aug. 19.*) it was much better; tongue and skin cool, pulse at its usual standard, 60 in the minute; no disposition to stool, but occasional flatulence.

Aug. 21. Took castor oil, which not operating, he took more: in the course of the day it produced four stools, free and copious, without the least protrusion of the bowel, although, for a long time before the operation, he said he never could go to the water-closet without the part coming down, frequently with much pain, always with bleeding and difficulty in the reduction. The parts were sore, but without any remains of the constant pain that immediately followed the operation.

Aug. 24. Had taken more castor-oil, which had operated twice, without the least protrusion. The ligature fell off in the night; the soft pulp of the slough still remaining attached, the poultice was continued.

Aug. 30. The slough separated, and the wound healing. Having told him he might leave town by the first of *September*, his carriage being adapted for a reclined posture, I gave him a note to his professional attendant in the country, requesting the wound might be dressed with a solution of the arg. nitrat. and the bowels be kept open. He was directed to lay down in his carriage, not from regard to the wound, or the pain that might result, for sitting or walking produced no uneasiness; but having seen the extreme tendency to general relaxation in the parts, I thought it wrong to impose the whole weight and pressure of the abdominal

viscera upon the muscles supporting the anus, so soon after the operation.

Sept. 10. I was acquainted that the wound was perfectly healed, and his health in every respect so perfectly restored, that I could not object to his being out with his gun for three or four hours a day.

On the 24th, I had the pleasure of seeing this gentleman, when he told me he remained perfectly well, though, being very fond of shooting, he had plenty of exercise. The parts looked healthy. A tonic draught was directed to be taken twice a day.

Oct. 29. My patient wrote word that, for the first time, there had been a partial return of the prolapsus; it gave no pain, was attended with no bleeding, and was readily returned. Ordered his medicine to be continued, with castor oil, when required.

Nov. 27. This gentleman called to acquaint me that he was quite well; that he had on the average walked ten or twelve miles a day, with his gun, without any return of his complaint, and had been on a visit, where he had bathed in the sea, with evident benefit to his health. Violent exercise, or confined bowels, he said, was apt to produce a sense of fulness in the parts. He observed that he now rarely perceived any trace of blood in his stools; whereas before the operation, he used always to pass some, and frequently a considerable quantity, with his motions; a circumstance which prevented his accepting the invitations of his friends, from the extreme unpleasantness of seeing the water-closet perpetually covered with spirts of blood.

Jan. 15. 1821. He wrote me word that his health was very good, but that upon visiting the water-closet he had always a return of protrusion; sometimes to a fourth part the extent, usual before the operation.

Satisfied of the beneficial change in his complaint, from the operation, this gentleman again consulted me, desirous to know whether the repetition of the operation might not completely answer our expectation. The opinion I gave was upon the whole favourable to its repetition, but as I had never before known it fail even partially, I requested that another opinion might be taken. Mr. HEAVISIDE was therefore consulted, who seeing the matter in the same point of view with myself, a second operation was determined upon.

Feb. 24. The second operation was performed, in the presence of Dr. GLADSTONE, and with the assistance of Mr. HEAVISIDE. The mass of relaxed integuments at the left side of the anus I secured by passing a double ligature upon a needle, through its basis, and tying it on each side. The pain was very severe for the first six hours, after which he became much easier. The nights were good; and the pulse quiet, below 60, and about its natural range.

The ligatures dropped off on the ninth day. The bowels were occasionally regulated by castor oil, without the least protrusion.

March 7. The wound clean and healthy. The peculiar character in this case was that of an unusual degree of local debility, for even after the parts were perfectly healed, the bowels never acted without inducing a peculiar œdematous fulness about the anus, though no protrusion took place.

June 9. Called, and observed that he was extremely well in his general health, and never had the least unpleasantness except on going to stool, but that then certainly a small degree of protrusion still took place; which was however nothing to speak of, as it never equalled one-eighth of its former size, and always either returned directly of itself, or was reduced with the greatest ease; as to bleeding there was now no trace remaining.

With a view to assist, if possible, in restoring the

local tone of the bowel, I at different periods directed solutions of the sulphate of copper and of the nitrate of silver to be thrown up into the rectum; the former gave pain, and evinced some power, the latter none.

June 1823. The parts having remained precisely in the same state for the last two years, without the least perceptible increase of weakness, I advised that nothing further should be done than to continue to pay proper and constant attention to the health, and to the regular performance of the functions of the alimentary canal.

CASE 71.

Habitual Intus-susception of the Rectum, with Hæmorrhage, greatly relieved by Medical Treatment.

A FEMALE of full and relaxed habit, aged 50, applied to me, *March 18. 1822.* With regard to her history, she considered several severe labours had tended to injure the bowels. In 1805, she was very ill, the abdomen constantly oppressed with wind, and an urgent sense of weight, and bearing down. At this time confined to her bed, abscess formed, at the lower part of the loins, as it appeared to her; for there she felt great heat, throbbing, shooting, and swelling, for eight days, during which the passage of the daily stool was so intolerably painful, she could scarcely stifle her screams. It broke, and she obtained instant and great relief, upon a tea cupful of yellow matter flowing off by the vagina. The passage of her stools also became at once much easier. In a few days the discharge subsided, and she felt comparatively well. The bearing down, however, often returned, and particularly on the return of the catamenial periods, when frequent and violent spasm in the sphincter came on. Every few months the abscess would become painful, gather for a few days, discharge, and then heal. The frequent return of this irri-

tation was after some years productive of a new symptom, during the inflammatory action very distressing; this was a constant desire to pass water, and total want of power to void it, oftner than perhaps once in twenty-four hours. She sought relief by sitting over the steam of warm water.

For the last few years, she had been subject to bleedings from the bowel, generally confined to the time when the abscess was forming; blood appeared with each stool, commonly for two or three days, and then went off again.

Within the last year, menstruation ceasing, there was more frequent recurrence of abscess, with a sense of weight in the lower part of the bowel.

March 21. In great pain about the back and loins, she sent to me, and allowed me to examine the rectum. The bowel, filled with warm water, felt clear and healthy to the finger, but a middle sized silver ball met with a soft moveable obstruction at four inches, which receded before the instrument, without pain, till it had traversed nine inches of the lower portion of the gut. Some bark, combined with a gentle aperient, was directed.

March 22. She declared that since the examination she had been easier, and better, than at any time past for many years; whatever was the reason. This impression was so clear upon her mind, that it appeared to be correct, and added to what occurred in the examination of the parts, rendered it most probable that the occupation of the space by the injected fluid, assisted by the pressure of the instrument, had restored to its natural position a part of the gut which, habitually lax, had fallen down into the more enlarged portion below it; a state that must necessarily create and keep up very uneasy local sensations. She was directed to continue the medicine, ordered on the 21st.

April 9. 1823. This patient had remained more than a twelvemonth without any recurrence of abscess; having had no return since the examination.

There was still a little occasional pain in the bowel, with a trifling appearance of blood ; the return of which was however entirely prevented by having again recourse to her old medicine, which instead of now operating as an aperient, reduced her motions from three or four, to one in the day, and quite relieved the other symptoms.

Sept. 1823. She remained extremely well.

CASE 72.

Intus-Susception of the Bowels.

October 13. 1818. I examined the body of a large healthy looking child, who had died the preceding evening, at the age of twelve months, from disordered bowels ; and had suckled heartily only an hour previous to his death. For several weeks an apothecary had attended, and directed medicine, at first to remove relaxation, but latterly to relieve costiveness. For a week before his death he suffered constant uneasiness, with so much straining that blood was voided in the fruitless attempts to pass a motion. These symptoms increased, but the child had no more stools, notwithstanding the most active medicines were given, of which some were retained, but most rejected. Repeated attempts were made to procure relief by throwing up an injection ; but although the tube was fairly introduced, the mixture would not pass, but returned immediately.

On dissection, I found the bowels inflated. The stomach appeared uncommonly large and vigorous, but touched with the finger it instantly subsided. This arose from an extensive disorganization of its substance, a change in which the stomach had been passive ; in colour it was white, as if boiled, and when suspended in water, it was impossible to distinguish the fragments of its coats reduced in different degrees from the bilious and

half-digested milk contained within its cavity. This unexpected state was the consequence of the digestive action having seized upon the viscus itself, almost before it could be said to have lost its vital principle.

On further examination, an intus-susception of the whole extent of the colon was discovered to have been the cause of death. The load of contents within the rectum was very great, and extended downwards quite to the sphincter of the anus. This state of parts had commenced by the lower end of the ileum being pushed down into the larger cavity of the colon; this protrusion having next inverted the head of the colon, and progressively the whole of the remaining part of the intestine, which was thus dragged gradually down through the rectum till it had reached the external opening of the anus.

The present dissection afforded the clearest proof that the fatal constriction existed at the upper extremity of the intus-susception, as already stated. At this part the ileum and another portion of small intestine were received, the latter having been drawn in by the mesentery attached to the ileum, that had passed down before it.

The displaced parts consequently included the whole of the colon, the cœcum with the appendix cœci, the lower part of the ileum, with a part of another convolution of the small intestine; the inverted head of the colon being the part which must have appeared externally, had the tumour pushed quite through the anus.

The inverted colon, divided longitudinally, exhibited in a remarkable degree, the occasional effect of strangulation. It was considerably thickened, and of a dark colour, the section demonstrating that these circumstances were owing to a layer of extravasated blood, deposited in the cellular texture between the mucous and muscular coats of the bowel. Some little threads of coagu-

lated blood were still attached to the openings of the overloaded capillary vessels, whence the bleeding had taken place upon the mucous surface of the inverted and strangulated colon, just within the anus.

CHAPTER V.

ON HÆMORRHOIDAL TUMOURS, OR PILES.

SECT. I.

On the Causes.

223. THE external integument, or skin, immediately encircling the verge of the anus, is liable to be distended by a deposit of fluids in the cellular membrane, connecting it with the parts beneath. This distention, which may be produced by an effusion either of blood or serous fluid, or both, constitutes the hæmorrhoidal tumour.

224. This kind of tumour, sometimes much inflamed, and often excessively painful, may arise from any irritation in or near the lower part of the rectum: it most commonly depends on some obstruction in the circulation through the hæmorrhoidal veins. Habitual neglect of the bowels, favouring the accumulation of hardened fæces in the rectum; straining to void a confined stool; the pressure of the gravid uterus, or of any preternatural tumour; a sedentary life; sudden and violent exertion; lifting heavy weights; have, in their turn, been the means of bringing on this disease, and may be considered some of its most frequent causes.

SECT. II.

On the Symptoms and Appearances.

225. THE first appearance of hæmorrhoidal tumour is generally connected with pain and inflam-

mation. The patient usually complains of an uneasy sense of weight and fulness, as well as of heat, about the parts, particularly severe in passing a motion.

226. It has been already observed that these swellings arise either from a deposit of blood, or of serum, beneath the skin. This distinction appears to me worth pointing out, having learned from experience that the means calculated to remove the one kind will not relieve the other.

227. Hæmorrhoidal tumours may be numerous, or otherwise. Sometimes a single swelling only exists; more frequently there are several surrounding the anus.

228. The sanguineous hæmorrhoidal tumour will be opaque, and of a comparatively dark colour, the blood sometimes shining evidently through the skin; it will usually be of more firm consistence, and more slow formation. The serous hæmorrhoidal tumour, on the other hand, will be pale in colour, almost transparent, highly elastic, easily compressible, and soon produced: the former usually requiring a few days, the latter a few hours only for its production. The sanguineous occur in the strong, the serous are more apt to arise in the weak and irritable. In the sanguineous, the bowels are generally deficient in regularity of action; in the serous this is not so often observed.

229. These complaints, when connected with inflammation, are very painful. The patient can then neither walk, ride, nor sit; the only tolerable state being that of absolute rest in the reclined position. Should he during the continuance of inflammation be obliged to pass a motion, the distress is extreme. With these symptoms there is generally more or less feverish heat and restlessness, now and then delirium.

230. Hæmorrhoidal tumours, when inflamed, are in several respects unfavourably circumstanced. They are surrounded by parts which by their natu-

ral warmth tend to keep up, and even increase, local heat; the fulness of the surrounding blood-vessels impedes the circulation, thus aggravating the pain and tension; while the heat and irritation rarely fail to excite frequent and violent spasmodic contraction of the sphincter, almost entirely preventing the return of the blood by the hæmorrhoidal veins that pass up into the bowel between the mucous membrane of the gut and the muscular fibres of the sphincter.

231. Occasional hæmorrhage is in most cases connected with this kind of tumour. Perhaps in the efforts to pass a motion, bleeding comes on while the parts are inflamed; in this case the blood generally flows from within the anus, though it may occasionally spring from some part of the external swelling. Sometimes the bleeding will first occur and frequently return in the absence of every other symptom; or at least without pain, inflammation, or external tumour.

232. When bleeding has once taken place it may naturally be expected to return, and almost invariably does so; and this return of bleeding, either from its frequency or its extent, uniformly impairs, and sometimes destroys, the constitutional health.

233. The repeated losses of blood progressively lessen the powers of the system, while they introduce habits that, unless attended to, frequently prove of the most serious consequences.

234. When the quantity or volume of the circulating blood is diminished by a part being withdrawn, the loss can be repaired only by the vital powers, whose proper office it is to repair such loss, that there may constantly be kept up a sufficient store for the supply of all the wants and the fulfilment of all the purposes to which the blood is subservient in the animal economy.

235. Hæmorrhage, therefore, as it induces a more rapid waste, incurs at the same time a more prompt reproduction of blood than would otherwise

take place ; and it must be evident that the circulating system, under the continuance or perhaps increase of this habit, will unavoidably be subjected to great and hazardous fluctuation, exposing the patient at one time to the distressing and irksome feelings incident to extreme languor and debility, and at another to the more dangerous and suddenly alarming consequences of excessive fullness of blood. (259.)

236. Spasmodic contraction of the sphincter, in the inflammatory or irritable state of hæmorrhoidal swellings, is sometimes a distressing symptom, aggravating considerably the sufferings of the patient. Mr. HEAVISIDE has, in the course of his practice, in two instances, been consulted, where inflammation taking place in tumours of this description, from exposure to fatigue, the violence of spasm in the sphincter produced complete strangulation, the parts undergoing spontaneous mortification, and the patients obtaining the advantage of a radical cure, without the fatigue of an operation. The possibility of this accident is mentioned by M. LE DRAN.

237. Extreme irritation, unconnected with inflammation, is an occasional character, and sometimes the leading one, in hæmorrhoidal complaints. I have more than once found this symptom had baffled the endeavours of several other surgeons, who had been previously consulted. In two instances particularly, it was impossible to obtain rest or respite from suffering by any means ; poultices, fomentations, opiates, and other medicines, all failing.* There is reason to believe, in these cases, that a tendency to spasmodic contraction in the sphincter, is connected with permanent irritability in the rectum immediately above it. However this be, I have witnessed few complaints more dis-

* Cases 92. and 93.

tressing to the patient, or more embarrassing to remove by medical treatment.

238. Hæmorrhoidal tumours occasionally occur, in connection either with inflammation, abscess, or fistula in ano; and in several such cases it has appeared to me that they have been the principal exciting cause of all the mischief.

239. In structure, the hæmorrhoidal tumour varies. The serous tumours are in fact little else than the temporary result of œdema, from irritation or inflammation; the sanguineous tumour, on the contrary, is the direct consequence of extravasation of blood.

240. Where a small vessel has ruptured, it usually produces a single tumour at the verge of the anus, extremely painful, and generally somewhat heated. In one case of this kind, the patient, in passing a confined stool nine days before, felt pain at the side of the anus, which continuing, excited heat and extreme tenderness. A fluid was felt under the skin, with so much pain that I could scarcely persuade him to allow a lancet to be passed into it. This, however, was done, and near an ounce of blood let out. He found immediate and perfect relief, and the cavity was healed within three weeks. In another case a woman complained of a painful swelling at the verge of the anus. Here the tumour was single, and the skin covering it irritable, shining, and livid. It appeared to have been produced by a confined stool several days before. The little coagulum of blood was let out, the pain was instantly relieved, and the part readily healed.

241. Where this complaint is the slow result of local debility, or habitual confinement of the bowels, there are generally several unequally-sized tumours round the verge of the anus; should these contain blood, it is most commonly found deposited in separate masses. In examining the structure of a tumour of this kind, the swelling, evidently produced by blood, was neither a varicose vein, nor an

effusion from a varicose vein. If it had been the former, the vein might have been seen; if the latter, the effused mass would have been single. The hæmorrhage had evidently proceeded from the capillary vessels in the cellular membrane. The blood had formed cysts in the cellular texture; and the various tints in the colour of the coagula proved that some had been more recently deposited than others. In some, the same vessel had repeatedly given way, as evinced by the section exposing several concentric laminæ, the external of a brighter colour, the central by gradations darker. The number of coagula in one of these tumours must have been considerable, for upon a single section I counted eighteen; the largest the size of a pea, the rest much smaller.

242. When, from over-distention, the external skin covering a recent coagulum gives way, the vessel may continue to bleed perhaps till the patient is nearly or entirely faint; or should the hæmorrhage occur from within the sphincter, from some one of the veins giving way, the same event may take place; but, in the latter case, the vessel is previously in a weakened and varicose state. The accurate determination of this point has been facilitated by several recent opportunities for prosecuting the enquiry. I once ventured an opinion that where hæmorrhage occurs from within the sphincter, it seems in general more correct to attribute it to some diseased condition of the mucous membrane of the gut, than to relaxation of the coats of any particular vessel. I now, however, know, that in hæmorrhoidal diseases it mostly arises from the rupture of a vein previously enlarged, as I have in several instances ascertained, even where there had never been external tumour.

243. When these veins, situated between the coats of the bowel, become enlarged, they raise the inner membrane of the gut; this membrane, more exposed than before to pressure from the

contents of the intestines, suffers a partial absorption at particular points : these circumstances leave the coats of the vein unsupported, and unavoidably pave the way to subsequent rupture of the vein itself. These facts will be illustrated by the cases.

SECT. III.

On the Treatment.

244. THE relief of the serous hæmorrhoidal tumour is easily accomplished. Absolute rest for a few days, attention to the bowels, and in some cases fomentations, in others cooling lotions to the parts, will generally be all that is necessary.

245. The sanguineous hæmorrhoidal tumour is often attended with much inflammation, requiring, in addition to absolute rest, an active treatment. If the patient is of a full habit, and the parts very turgid and painful, an important step may be the application of some cupping-glasses near the parts. Leeches will occasionally answer the purpose ; but if it is required to take away five or six ounces of blood speedily, the operation of cupping is much more certain, as well as more convenient. If necessary, the bleeding may afterwards be encouraged by fomenting with warm water, or a poppy-head decoction. Should the bowels be confined it may be prudent to delay for a little the additional disturbance incurred by the passage of a stool perhaps containing hardened fæces, until the symptoms are somewhat relieved ; although the procuring a cool and gently relaxed state of bowels is always important, and indeed till this point is gained, little real progress in improvement can be made.

246. Should feverish symptoms demand attention, the proper means will rarely fail to relieve them ; saline or antimonial diaphoretics may, if necessary, be added to aperients, and when they have operated satisfactorily there will be no ob-

jection to directing an opiate at night, to lessen irritation.

247. Painful spasm of the sphincter may generally be relieved by the continued use of warm fomentations, or occasionally by gentle steady pressure upon the tumid parts, by which means part of the blood will be made to pass inward by the hæmorrhoidal veins, relieving the sense of outward fulness.

248. Where, however, disposition to spasm in the sphincter is connected with high irritability in the bowel, the only means I know of capable of relieving and removing the complaint, is the introduction of a metallic bougie for a certain length of time, the size of the instrument, and frequency of repetition of the operation, being so regulated as to overcome the disposition to spasm in the muscle, while by steady pressure, exciting some degree of inflammation, it changes the constitution of the parts completely for the better.

249. If, during inflammation, bleeding comes on, it will materially assist in unloading the parts, for which reason it should be rather encouraged than repressed, unless the flow is immoderate.

250. Inflammation subdued, the parts subside into a state of comparative quietude; although the passing a motion may still be attended with some degree of pain, or bleeding, or both. In these respects, the health may generally be improved by care to avoid costiveness, and by the use of cold water locally, or some astringent application.

251. Where hæmorrhage frequently recurs, it generally proceeds from the vessels just within the sphincter, judging from my own experience. That which arises from an external tumour may happen once or twice, but bleedings from the veins within the gut may, and frequently do, return almost daily, for many years.

252. Should the principal or leading character

in hæmorrhoidal complaints be frequent hæmorrhage from the veins within the sphincter, with perhaps little or no external tumour; one of the best means of relief is in my opinion the metallic bougie, used as already directed (248.); regulated of course by the patient's feelings, and also by the promptitude with which inflammation and consolidation takes place. *

253. The object which, according to my view of the subject, claims the principal regard in the medical treatment of hæmorrhoidal complaints, is to obtain a regular, easy, and natural action of the bowels, without being under the necessity of having perpetual recourse to purgatives: the consideration of this point, however, would be an anticipation of what I have reserved for the conclusion of these observations, I shall therefore pass on to state what appears to be the best operative surgery in these complaints.

254. Our views must not in the present case be confined to the mere removal of the tumours; they should rather be extended to the adoption of that mode of operating which will most effectually secure the patient from any future return of the disease; and this security can more confidently be expected from the use of the ligature, than by depending on the knife. The ligature also avoids the present risk of serious hæmorrhage, which even the advocates of the knife have admitted is apt to take place from the excision of these tumours, a risk that in real importance far outweighs any objection yet brought forward against the ligature.

255. In performing the operation, it is not necessary to take up each of the tumours; if there are five or six, the tying of two or three of the largest will generally excite such inflammation as will produce a change in the texture of the remain-

* Cases 92, 93, and 94.

ing parts sufficiently complete to secure the patient from any return of the disease.

256. It has been urged that the ligature is much more painful than the knife, but I have met with only one case in which it was so. It occurred seventeen years since, in a field officer in the army, who had just returned from India. The tumours I assisted in removing were neither large nor numerous. Only two ligatures were applied, great pain, considerable fever, and some delirium, followed the operation, but the usual means for relieving inflammation, assisted by fomentations, brought every thing back in a very few days to a quiet state, without the least delay to the eventual recovery of health, or the effectual cure of the complaint.

257. The practice of some eminent surgeons, who, after having applied the ligature, open the tumour with a lancet, I never adopt; for if the ligature be tied sufficiently tight, the very reason given for the practice falls to the ground, because a part once included in a tight ligature is so effectually cut off from the living body as to be incapable of exciting any sense of pain, or of tension; besides which, the reasons I have already given (173.) in favour of leaving other tumours to spontaneous decay are equally applicable to those now under consideration.

258. Subsequent to the separation of the ligatures, the fomentations may be laid aside, and the parts may be washed freely with cold water, or kept moist with some cooling lotion, to restore tone, and promote the healing over of the ulcerated points, from which the tumours had been removed.

259. In considering the above operation, we must reflect a little upon the circumstances under which the constitution is placed by its performance. The history of such patients generally informs us that they have been for months, or years,

subject to frequent losses of blood, the consequences of which upon the system have been already noticed (235.). The tumours removed, the patient finds himself no longer subject to bleeding, and usually recovers his strength very quickly. The habit, long accustomed to a drain now cut off, will require some time and some attention, in a medical point of view, before it can accommodate itself to the new order of things. The patient, under these circumstances, should hardly be finally left by his surgeon the moment the operation is performed *, without even a caution as to any necessary attention to himself in future. On the contrary, the turn of the constitution should, for some little time, be waited for, and watched; and if symptoms arise, indicating local fulness of vessels, they should be met with promptitude. Where this attention is duly shown, the patient will find himself amply compensated by eventual restoration to a good and even state of health, long unknown to him; while his professional attendant will enjoy the pleasing conviction that naturally arises from every endeavour to do good, added to the consciousness of having proved that the profession of Surgery deserves not to be regarded as an art, but honoured as a science.

CASE 73.

Serous Hæmorrhoidal Tumours.

A THIN woman, aged forty-six, had been for years subject to severe pains in the back and loins, occasional swellings at the verge of the anus, and an appearance of blood in her stools, whenever confined in her bowels. She said that, when tolerably free from the pain in her back, an excessive irritation, just within the anus, had sometimes appeared to reproduce the external fulness, pain,

* Case 90.

and swelling. These inconveniences, however, by attention to the bowels, and to rest, always went off again.

On the 5th of *January*, in straining violently, a part of the bowel protruded externally, with much pain, and an irksome complaint of bearing down. By pressure and the recumbent posture it was reduced; and by the next morning she was pretty well recovered. The prolapsus did not return.

January 23. I examined the parts, and found several small serous hæmorrhoidal tumours, with œdema of the cellular membrane round the verge of the anus. A cold lotion, strongly impregnated with the acetate of lead, was directed to be constantly applied to the parts; the patient was confined to her bed, and the bowels attended to. Under this system the tumours soon disappeared, and in three weeks she was completely relieved from all her complaints; none of which had returned when I enquired after her, four months afterward.

CASE 74.

Serous Hæmorrhoidal Tumours.

MR. G., a middle-aged gentleman, of a heavy but weak frame, consulted me, *Aug. 24.* I found him in much pain, extremely depressed in spirits, and incapable of sitting up, from a complaint he had been told was the piles, to which he had been subject for years. With great local irritation and distress, there was so much dread of passing a motion, that, although the bowels were disposed to act regularly, he generally avoided having a stool oftener than once in three or four days. The pulse was quickened, and the tongue furred.

On examining, I found several rather large tumours at the verge of the anus. These tumours were of a pale yellowish colour, almost transparent,

and appeared to have arisen from irritation and pressure upon the veins of the rectum.

Strict observance of rest, saturnine lotions, and an occasional aperient, were the means prescribed; which, in a few days, so far relieved him, that he was able to leave not only his bed, but his house also; for he spent his evening in company. On examining the parts, eight days after I first visited him, neither swelling, heat, nor pain remained. He was, however, desired to take some bark for a few days; subsequent to which I took my leave.

CASE 75.

Serous Hæmorrhoidal Tumours.

A MAN, aged forty-eight, complained in *June* 1819, of pain in passing his stools, which frequently contained blood; and of a swelling at the fundament from his body coming down, to which infirmity also he said he was subject. On examination, a tumour was found at the verge of the anus. This at first looked somewhat like the protruded bowel, but proved to be several large œdematous, irritable, and painful hæmorrhoidal tumours. By attention to the bowels, the observance of rest, and the use of saturnine lotions, the swelling was reduced, and in a week the symptoms completely relieved; with the exception of some little remaining fulness about the parts.

This poor man had, for the last twenty years, been subject to an extensive ulceration upon the leg; consequent to which, about three months after the dispersion of the hæmorrhoidal tumours, a large slough formed and separated; during this process the anterior tibial artery suddenly gave way, and he died from hæmorrhage, almost instantaneously. I obtained leave to inspect the body. The lower end of the rectum removed from the pelvis, and laid open, was carefully examined. The sphincter of the anus was unusually relaxed, directly above

which, the veins of the rectum were seen loaded with blood; for nearly an inch in extent, they were much enlarged and varicose, raising up the mucous membrane considerably above the general surface. When washed with water, the appearance of the dark-coloured veins behind the inner membrane of the bowel afforded a beautiful contrast with the brighter colour of the fine arterial ramifications upon its surface.

On considering the above appearances, and particularly those of the blood vessels, it was sufficiently clear, that when bleeding had occurred to any extent from within the sphincter, it could only have been furnished by the giving way of some one of the varicose veins; several of which were equal in size to a goose-quill.

CASE 76.

Hæmorrhoidal Tumours, removed by Ligature.

IN *June*, 1820, I was consulted by Col. F. a most intelligent gentleman, a field-officer in the army, who, having been through all the peninsular campaigns, had suffered in almost every possible way, from fevers continued and intermittent, as well as fluxes; consequent to which several tumours had formed near the anus. These tumours for some months gave extreme pain, but then became easier. For some time, however, a small tender point had made its appearance between these tumours, which, in passing a stool, produced irritation and pain; from this inconvenience he desired to be relieved. He observed that for many years his bowels had never acted without assistance; and as experience had taught him, that the constant use of purgatives was extremely objectionable, he had of late frequently had recourse to injections. A severe bilious headache, also, he said he was subject to, but as he regarded this to

be a constitutional circumstance, he looked for no material improvement in this respect.

On examination, I found four hæmorrhoidal tumours; two rather large, though not turgid. On separating them, I perceived a little red tubercle, the projecting point of a protruded fold of the inner membrane of the bowel. Touching this with the end of a probe, he at once recognized it as the cause of all his annoyance. The tumours were subject to some variation, as to size and sensation; but there was no disposition to prolapsus at any time, beyond what has been just noticed.

The opinion I gave him was, that the uneasiness of which he complained at the verge of the anus, was very capable of being permanently removed, by the performance of an operation; that the habitual deficiency in the action of the bowels might, I thought, also be corrected by a little attention to medical treatment; and that as for his bilious headache, I was almost convinced, that upon the restoration of the healthy functions of the bowels, the complaint in the head would soon disappear.

For the present, I directed a light tonic, in combination with a gentle aperient; to be taken daily.

July 7. For the last week he had been taking Inf. Cinch. Inf. Gent. C. aa $\overline{3}$ ss. Magnes. Sulph. 3j. in a draught every morning; and said he had not for a great length of time been so well in every respect as now. Much less sense of local fulness; no irregularity or confinement of the bowels; and as for the pain in his head, he did not know when he had been so well as at present.

Aug. 5. I performed the operation, assisted by Mr. HEAVISIDE. The largest tumour, on the left side, was tied first, the ligature including the protruding fold of the inner membrane of the gut. A second ligature was then passed round a tumour on the opposite side of the sphincter, completing the operation. Pain and tumour followed, with trou-

blesome spasms of the sphincter, subsequently quieted by occasional opiates. In the evening, I directed a warm poultice to be applied.

Aug. 6. On changing the poultice, the parts included by the ligatures were found dark and livid. In my evening visit, I allowed the bidet to be used with warm water, procuring great relief from wind and tension.

Aug. 7. Early this morning, the ligature from the left side was missed; and the tumour had become altogether turgid again at the circle, although the line round it was evident, all behind being alive, all beyond livid and discoloured, although tense.

This accident, which never happened to me before, and which I suspect arose from the influence of the warm bath in relaxing and loosening the knot, was extremely unpleasant. The operation had been attended with more than ordinary pain, and the ligature having slipped, reduced the certainty of success to the chance of 24 or 30 hours' constriction being sufficient to effect the complete destruction of the tumour. Now, although I could myself feel no doubt upon the point, it nevertheless required 14 days' assiduous poulticing, before it separated as an entire firm and hard mass; whereas, the other ligature dropped off with its included soft and putrid tumour, on the ninth day.

Aug. 9. Rather heated and feverish, for which reason I directed some castor oil; it operated three times by the next day, bringing away to his amazement several copious, most offensive, and bilious stools, and that without difficulty or pain, since which time he had found himself much cooler and better.

Subsequent to the separation of the tumours, the ulcerated parts were for a few days dressed with lint, and then with a solution of the nitrate of silver. On the 25th of the month the parts

were healed, and all irritation nearly gone. Towards the end of the month, he was able to walk out as well as ever, and took an airing in his carriage. On taking my leave, I requested the tonic draught might be continued for several months, the aperient salt being much diminished in quantity, and generally omitted, being found altogether unnecessary.

In *Jan.* 1821, I had the pleasure of seeing this gentleman, and had the satisfaction to hear that he had derived every benefit that could have been wished from the operation, as well as from the subsequent medical treatment.

CASE 77.

Hæmorrhoidal Tumours, removed by Ligature.

Sept. 30. 1820. I operated upon a woman, in the Infirmary, at the age of 45; for several years subject to piles. Ligatures were applied to the two largest tumours. On the following day her bowels became disordered, for which I directed some gentle aperient medicine to be given. The parts were poulticed; but the pain from the operation was very moderate. The last ligature came away on the seventh day.

Oct. 17. The wounds healed, and the parts quite recovered, she expressed herself extremely thankful, finding herself entirely relieved from the pain and uneasiness she used to feel in passing a motion, and for some time after; adding that she now felt herself more comfortable in regard to health than she had been for many years.

CASE 78.

Hæmorrhoidal Tumours, removed by Ligature.

A STRONG hard-working woman, aged 59, suffered much inconvenience from an occasional sense of weight, fulness, and swelling at the verge of the

anus, in *August*, 1819. Frequently exposed to great fatigue, the violent bearing down soon produced several distinct and painful tumours; the distress from which was always temporarily relieved by laying down to rest. Now and then, she was subject to disorder and relaxation of bowels; on these occasions, the bearing down, straining, and swelling, were always much aggravated. Under confinement of bowels, she remarked, that the tumours did not come down so low, but the passing a stool was then generally attended with bleeding.

For these complaints she requested to be taken into the Infirmary, *Nov.* 9. 1820, stating that for the last two months, the constant desire to go to stool, the violent pain and increased swelling, had rendered her almost incapable of standing upright.

Nov. 10. I tied two of the tumours on the left side; the only ones of consequence. An opiate was directed for the evening.

Nov. 14. There was much inflammatory tumour. Some castor oil was given, and operated extremely well.

Nov. 15. Both ligatures came away with the poultice, before the sloughs had entirely separated. By continuing to poultice a few days longer the parts became clean.

Nov. 26. No remaining tumour, the parts quite healed, and all the complaints perfectly gone. Finding herself so well as to be able to stand or walk without pain, she begged to be discharged; it was however deemed prudent to allow her another week's rest; by which time the parts having completely recovered their tone, she was sent out.

CASE 79.

Hæmorrhoidal Tumours, with Stricture.

IN *Sept.* 1820, I received a visit from a lady, who stated her complaints to be in the lower part

of the bowels, and at the verge of the anus; observing that for their relief, she had already consulted three or four of the most eminent surgeons. She said that several years back, subsequent to a severe complaint in the bowels, she first perceived some little swellings, which were frequently very painful, and that since that period, she had occasionally been subject to irritation and other inconveniences, which she suspected arose from contraction within the bowel.

On examination, I found several small tumours at the verge of the anus; and a stricture to the extent of an inch, just within the sphincter. The contraction was, however, dilatable, and appeared likely to yield to the bougie.

It seemed to me that the first step towards restoring the parts to a healthy state should be the removal of the constant source of irritation kept up by the tumours, and that the next operation would be comparatively easy, in the dilatation of the stricture.

Sept. 13. I tied two of the principal tumours. Irritation and hysterical excitement followed, but soon went off again. An opiate was given at bedtime.

Sept. 17. The bowels having been quiet since the operation, some castor oil was directed, that operated with great relief.

Sept. 18. During the preceding night much annoyed by spasmodic contractions of the sphincter, which, although quiet while awake, never failed to disturb her, the very moment of dropping off to sleep; notwithstanding the opiate, which was repeated every night.

Sept. 19. I was acquainted that an irritation anterior to the passage of the bowel, which, from frequency and severity, had for many months been productive of great distress, had returned but once since the operation, and then only to a very trifling degree.

Sept. 20. The ligatures came away with the poultice, leaving a clean and healthy surface.

Oct. 12. Some interval allowed to pass subsequent to the healing of the wound, an elastic gum bougie, three-eighths of an inch diameter, was passed through the stricture, and kept there five minutes, without pain. She said she found herself greatly relieved in every respect, by the late operation.

Nov. 6. Having successively increased the diameter of the bougie, until one of full size passed with ease, and finding also that the passage of the motions had ceased to excite the least sense of uneasiness, this lady took leave of me, preparatory to visiting the country.

During the above attendance, upon repeated complaints of the want of regular action of the bowels, as well as of dislike to the constant use of purgatives, I for some weeks directed medicines upon the principle laid down in the concluding part of these observations, with perfect success; and consequently very much to the satisfaction of my patient.

CASE 80.

Hæmorrhoidal Tumours.

Aug. 30. 1820. A middle-aged gentleman called upon me, who stated that from confinement of bowels during a long journey through Italy, some painful tumours formed within the verge of the anus; and that in April last, a surgeon, a friend of his, had performed an operation, and with scissars had cut off three hæmorrhoids from the inner surface of the bowel, telling him he would engage that he would never be troubled with that complaint again. Upon this point he was desirous of hearing my opinion.

On examination, I found there had been tumours, but that now there were none. The cavity of the

bowel was healthy, but the parts within, and at the verge of the anus, much disposed to relaxation and fulness. As to my opinion, I acquainted him that I considered it of the first importance to keep up regular action in the bowels, to ensure as far as possible the continuance of his present health; but that as to any absolute security from future return of the complaint, I could not express so confident an opinion as his friend had done, although by attention and care, he might perhaps avoid it.

CASE 81.

Hæmorrhoidal Tumours, removed by Ligature.

July 4. 1821. I was consulted by a gentleman, who for some time had been annoyed by the inconvenience incident to piles; great irritation and frequent pain about the sphincter, aggravated by exercise, or confined action of the bowels.

On examination, I found several small sanguineous hæmorrhoidal tumours, very tender, and disposed to inflammation. An aperient draught, and cooling lotions were directed.

Aug. 24. Having advised the operation, I this day secured the largest tumour by passing a needle with a double ligature through its basis, tying it upon each side, behind the contained coagulum of blood. The smaller tumour, on the opposite side, was encircled by a single ligature.

Aug. 27. Spasm of the sphincter somewhat troublesome.

Sept. 2. The last ligature separated. General tumour inconsiderable.

Sept. 5. The continued application of poultices having rendered the parts clean and healthy, they were now dressed with lint.

Sept. 9. The little ulcers perfectly healed over, and the health perfectly restored, I took my leave.

CASE 82,

Hæmorrhoidal Tumours, with Prolapsus; removed by Ligature.

Aug. 1. 1822. A lady of rank came up to town from Weymouth, having previously been several months under the care of her physicians, for a severe attack of piles. Upon examination, I found two tumours, that on the right including a small fold of the inner membrane of the bowel, that on the left a hard coagulum of blood, the size of a large scarlet-bean.

Aug. 2. Having visited London expressly for the operation, this lady was anxious to have it over; and, as the bowels required no previous attention, I performed it this morning, and with Mr. HEAVISIDE's assistance, passed a ligature through the left, and another round the right, tumour, which was all that was required to complete the operation. There was considerable aching pain through the day, but some sleep during the night.

Aug. 4. Without any opiate, there had been several hours very refreshing sleep.

Aug. 11. Nothing unusual had occurred. The last ligature was found separated this morning.

Aug. 17. Doing extremely well. All the tumour gone. The points from which the ligatures dropped, very nearly healed. All the local pain incident to hæmorrhoidal complaints entirely removed.

Aug. 24. The parts were perfectly healed, and all complaint of uneasiness perfectly removed. I requested, however, that for a short time a very light aperient should be taken every morning.

CASE 83.

Hæmorrhoidal Tumour, with Prolapsus, removed by Ligature.

A YOUNG gentleman, a student in divinity, came up from Eton to consult me, *May 1. 1821*; for a tumour formed about a year before, at the verge of the anus. This he believed to be the joint effect of severe exercise at cricket, and a violent fever consequent to it, but particularly some purgative medicines ordered during his convalescence.

On examination, a large sanguineous hæmorrhoidal tumour presented, to the left of the sphincter, and upon observing the parts after a motion, a considerable fold of the inner membrane of the gut was found protruded.

May 2. Passing a tenaculum through the tumour, I so placed a ligature round its base, as to include a portion of the protruded lining of the gut, the ligature being then tightened.

May 3. I found the parts excessively loaded with œdema, and a large protrusion of the inner membrane of the bowel upon the right side, which I endeavoured in vain to reduce. This circumstance had arisen from his straining hard, at the water-closet, under the idea that he wanted to pass a motion.

May 7. The last two days poulticed, the protruded membrane looked black and sloughy, the tumour from inflammation large, but flaccid. He felt so easy as to be able to sit and walk with little pain.

May 12. The hæmorrhoidal tumour and ligature dropped off during the night. The three preceding evenings he had used the warm bath, which greatly accelerated the decline of the inflammatory tumour; and as to the large protrusion of the internal coat of the bowel, it had gra-

dually retired, and neither a careful examination, or pressure downwards, enabled me to discover the least remaining tendency to protrusion.

May 14. The ulcerated spot so trifling, and the general aspect and state of the parts so favourable, that as he said he was sure he could travel without inconvenience, I agreed to his leaving town for Eton.

CASE 84.

Hæmorrhoidal Tumours, with irritable Bowels, and supposed Stricture ; treated by Ligature.

Sept. 22. 1822. Capt. B. a gentleman who, having passed many years in India, had sustained repeated attacks of dysentery, and liver complaint, and had now come to Europe for advice, consulted me for habitual irritability of bowels, a supposed contraction, or stricture in the rectum, and a partial defect of power in the sphincter. General health very good ; bowels usually moved two or three times in the day. At the margin of the sphincter, I found several hæmorrhoidal tumours. Within the cavity of the gut, when filled with warm water, a silver ball, an inch in diameter, traversed with perfect ease 13 inches, without inequality, irritation, or the least tendency to contraction, being perceived. Surprised at the extent, and pleased at the satisfactory result of the examination, he said he was not aware that the instrument had been passed further than the sphincter.

Oct. 4. Having acquainted him there was no disposition to stricture ; that the habitual defect in the action of the sphincter was, perhaps, partly consequent to the tumours situated at its margin, and advised in consequence to have those tumours removed ; the operation, with Mr. HEAVISIDE'S kind assistance, was this day performed.

The largest tumour on the left, drawn out by the tenaculum, had a needle carrying a double liga-

ture, passed through its basis; one ligature being then tied round the left, the other round the right side of the tumour; the tumour on the right side was included in a single ligature. The pain, at first intensely acute, soon subsided into a sense of numbness. I directed a composing draught, to be taken at bedtime.

Oct. 5. The single ligature had left its place, and slipt off. Little pain, pulse undisturbed. At 5 P. M. I called. He had just left the night-chair, and had passed nothing but a dessert-spoonful of greenish-yellow matter, which had to me the appearance of pus from an ulcerated cavity. Not at first able to understand so singular an appearance, I requested him to examine it; he did so, and observed it was nothing more than the same mucous matter that always occurred from any irritation, and that even riding a few hours in a carriage was enough to bring it on at any time. So far from its exciting distress, he said that, had he not moved to have his bed made, he might, in all probability, not have felt the least desire to void that quantity till the next morning. I had every reason to know, there was no such matter excreted previous to this time; having inspected every motion passed for the preceding week. He said, that except from occasional irritation, he had seen no such mucus for the last ten years.

Oct. 6. Had passed a good night; less incommoded by pain, than any patient I had ever attended. There had been a copious, relaxed, dark, fæcal motion; a little more of the mucous matter had been also passed, just before, and quite distinct from, the fæces. On examination, the tumour from which the ligature had slipped off was just as forward in progress, as that upon which the ligature remained.

Oct. 7. Some bark in combination with an aperient was ordered; and a poultice applied.

Oct. 10. Found him walking about the room,

with a pulse quickened from 80 to 120. Said he had had very little sleep, from aching and smarting in the parts. To-day he had three most foetid, dark, bilious stools. Laid aside the bark, and directed an opiate, for bed time.

Oct. 11. Had been annoyed by spasm in the sphincter, much local pain and soreness, and a kind of cramp or nervous affection of the muscles of the left thigh and leg, which required to be kept in restraint until the affection went off.

Oct. 17. The ligatures and sloughs away, the parts were healing fast.

Oct. 24. The ulcers very nearly healed; the bark, as before, was again directed, and steadily continued.

Oct. 27. The power of retaining a motion was now restored, so that instead of being obliged to attend at the moment, he could wait for hours after he felt the inclination. The bowels were also rather less disposed to laxity than before the operation. Directing the bark to be continued for some time, with an occasional blue pill, I took my leave.

Dec. 26. I had the pleasure of hearing, by a letter from Dublin, that this gentleman was doing well.

CASE 85.

Ulcerated Hæmorrhoidal Tumours.

Nov. 14. 1820. I assisted Mr. HEAVISIDE in the examination of a robust middle-aged gentleman, in whom there was reason to suspect the existence of a fistula; as a constant, and as it was stated, sometimes a considerable discharge could not otherwise be well accounted for. Mr. HEAVISIDE had operated once on this gentleman for fistula fourteen years before, from which operation he quickly recovered.

We found an immense cluster of what had originally been a succession of hæmorrhoidal tu-

mours, some sanguineous, others serous; but from age and other circumstances, they were now rendered flat and thin, having the appearance of so many uneven plaits or folds of thin skin. In some of these varicose veins, in others little masses of effused and coagulated blood, were visible through the fine skin. They were so numerous, as to render the examination of the parts very difficult. After a diligent search, neither sinus nor opening into any cavity could be detected; but after much trouble, the daily appearance of matter upon the linen was explained, by finding, at the margin of the anus, towards the perineum, that the basis of one of the tumours had ulcerated to the extent of a sixpence. Upon enquiry where the pain was felt, and whence he supposed the discharge to proceed, he placed his finger exactly on the spot.

With a West-India constitution, it was deemed advisable to direct a gentle cooling and astringent lotion, to be applied daily upon lint, keeping the parts quiet, and the bowels open; the discharge was thus soon diminished, and the complaint eventually removed.

CASE 86.

Hæmorrhoidal Disease.

N. R. aged fifty-two, was admitted into the Infirmary, *April* 1. 1819. He stated that about ten years back he had been subject to frequent bleeding from the rectum; the blood flowing freely, whether the bowels were neglected or attended to. These symptoms had continued some months, when several painful tumours formed at the verge of the anus, which for many weeks continued to annoy him with acute and shooting pains. For their removal he was advised by an acquaintance to expose the parts to the acrid fumes of burning sulphur. The experiment produced intense pain, and some inflammation. The tumours, which before were

full, dry, and smooth, now became cracked, moist, and shriveled, oozing out a serous fluid.

From this time he remained nearly free from the complaint till a twelvemonth since, when from exposure to good living and hard work, the bleedings returned, and became frequent and considerable. In place of the former tumours, he was now inconvenienced by some excrescences, that excited much irritation, excreting an offensive serous moisture. A saturnine lotion was applied for two months, without much diminishing the discharge, although it relieved the heat and lessened the irritation.

April 4. 1819. These excrescences were removed. As the patient had latterly complained much of weakness, and even occasional prolapsus, it was considered advisable to try whether the largest of the tumours would bear the ligature, in expectation, that if it were practicable, the tone of the parts might be thus improved. A ligature was placed round the basis of the largest, but on tightening it, the substance of the excrescence was pinched out of its place, leaving its thin covering of skin behind. They were therefore separately snipped off, with a pair of scissars.

In the early part of *May* he took cold, and was much disordered in his bowels; for this disorder he was seen by the physician; the complaint, however, increased, a colliquative diarrhœa followed, and on the 12th of the month he died.

On examination, the lower end of the rectum was found enlarged, and its coats thickened. The bowel laid open, its inner membrane appeared thickened, pulpy, and thrown into large loose folds, among which were found little masses of a transparent whitish jelly. At the posterior part of the rectum, just within the sphincter, the bowel was for the space of a shilling ulcerated, with a thickened margin, overhanging the basis. The surface of the ulcer was purulent, with numerous small

brown points, that with a glass appeared to be sloughing granulations.

Externally, by a small opening, a probe found its way into a sinus behind the muscular band of the sphincter, and came out upon the ulcerated surface of the bowel. The sinus passed through a little abscess that had formed in the cellular membrane. At the superior part of the ulcer, within the rectum, there was also a little opening, leading higher up into another abscess, not larger than a pea, seated in the cellular membrane of the gut.

Several tumid and varicose veins were seen through the inner membrane of the bowel, just within the sphincter, the varices being nearly equal in magnitude to those observed in another instance.* Some of these veins were excessively enlarged, and one had ruptured into the cellular membrane, the extravasated blood forming a coagulum the size of a large grape.

CASE 87.

Sanguineous Hæmorrhoidal Tumours, removed by Ligature.

Sept. 1813. I was consulted by a lady, long distressed by a complaint extremely painful in walking, or even sitting down, particularly when her bowels were confined.

On examination I found several hæmorrhoidal swellings; as the bowels required no previous attention, two of the largest tumours were immediately tied. Considerable pain and inflammation followed, with an unpleasant irritation at the neck of the bladder, and a mucous discharge from the vagina. Fomentations, however, with an opiate at night, very soon removed these symptoms, and on the fourth day the one, on the seventh the other ligature came away. A cooling lotion, applied to

* Case 91.

the parts for a week longer, completed her perfect recovery; since which time this lady has enjoyed good health, and has no tendency to any return of her complaint.

CASE 88.

Sanguineous Hæmorrhoidal Tumours, removed by Ligature.

MRS. B. aged thirty-four, applied to me, *April 28. 1813*, on account of some hæmorrhoidal tumours. She said they had existed for several years, but had of late produced much distress, being occasionally attended with severe pain, and sometimes inflammation. There were, in this case, five distinct tumours, but I found it sufficient to tie three of the largest. The inflammation that followed was moderate, and was much relieved by fomentations. The last ligature came away on the fifth day; and, within three weeks from the operation, the parts had entirely recovered themselves, the patient being restored to perfect health.

CASE 89.

Sanguineous Hæmorrhoidal Tumours, removed by Ligature.

Oct. 1815, I operated upon Mr. M. a gentleman aged thirty-four. The tumours, of the sanguineous kind, had occasionally produced much pain and distress, and were attended with bleeding from within the anus. I applied two ligatures, the last of which came away on the fifth day. In a few days more he felt himself mending apace, and within a fortnight after the operation the parts were perfectly healed; since which time he has enjoyed good health.

CASE 90.

Sanguineous Hæmorrhoidal Tumours, removed by Ligature.

Mr. T., a gentleman aged thirty-six years, requested my opinion in *January, 1819*, upon some swellings at the verge of the anus. He said, that

about four years back he had consulted a surgeon of the first eminence at the east end of the town, for the same complaints, who had given him no opinion, but had performed an operation upon him, by snipping away a small part of the projecting fold of the inner membrane of the bowel, and then cutting open one of the largest of the tumours, desiring him to keep quiet, and to have a poultice applied. As, to his surprise, he saw no more of his surgeon, and had received no direction as to management, he requested his apothecary to look after him. He soon recovered from the operation, the object of which, he supposed, had been to remove the tumours themselves, as well as the frequent bleedings from the rectum, to which he had for some years been subject.

Subsequent to the operation, he found that the appearance of blood in his stools was less frequent; but his bowels, naturally disposed to costiveness, now became more confined than ever. He also became subject to a frequent attack of a new kind, a heaviness and swimming in the head, sometimes to an alarming extent, for which his physician had of late repeatedly directed him to lose blood by cupping. For these complaints he consulted me, not concealing his anxiety to avoid, if possible, the necessity for cupping, as he very justly considered it a bad habit, and of dangerous tendency. His stools, at this time, were always mixed with blood, of which he had lost, during the last fortnight, as much as from one to four table-spoonfuls each day, dependent on the state of his bowels. I examined the parts, and finding the tumours themselves did not require any immediate attention, it appeared to me that the plan most likely to serve him was to direct medicines, the object of which should be to establish a regular, easy, and gently relaxed state of bowels, not by incessantly exciting their languid powers by purgatives, but by endeavouring to restore them to their natural tone, thus enabling

them to perform their functions punctually and perfectly, without the assistance of aperients.

As to the particulars of the treatment, it is only necessary at present to say it succeeded, and that, in two months, he not only found himself comfortable and regular in his bowels, unsolicited by medicine, and unassisted by any other means, but had lost all traces of blood in his stools. The complaint in his head also was relieved, and eventually left him entirely under the measures that were adopted; a circumstance that afforded both himself and his family infinite comfort.

In the following summer this gentleman visited Brighton; on his return to town he called, and assured me he had not passed a season in such good health, either as related to regularity of bowels, or freedom from any unpleasant sensation in his head for many years; he also observed, that he had neither been incommoded by bleeding, pain, or external swelling.

May 22. 1821. This gentleman called to say his old complaints had returned, and the tumours were extremely painful, and irritable; he at once assented to the operation. On the following day, with the kind assistance of Mr. HEAVISIDE, I tied two of the principal tumours, passing the tenaculum, and encircling each tumour with a strong ligature. Severe local pain and heat, were in two hours followed by comparative ease and relief.

May 23. Extreme abdominal inflation and uneasiness induced me to order physic, the operation of which required washing with warm water, and this, added to the tumefaction that had taken place at the basis of the tumour, had slipped off both the ligatures. In great distress of mind he sent to me, supposing the operation would now fail. On careful examination I could perceive no line surrounding the tumours, nor any part distinctly livid; but a large red swelling, extremely tense and painful. I requested he would

take more castor oil, from which he found great relief.

May 24. After a bad and feverish night, he was much benefited by immersion in the warm bath. The parts now exhibited signs of approaching discolouration beyond the lines round which the ligatures had passed.

June 4. The sloughs separated, and poultice laid aside; the ulcerated spots were dressed with dry lint, and some bark directed.

In a few days' time he left town, and on *June 30.* returned home, the parts being now entirely healed, and his general health perfectly re-established.

CASE 91.

Varicose Hæmorrhoidal Veins.

May 20. 1817. I opened the body of R. P., aged sixty-six. His complaints had been a complicated disease of the urinary organs; and the circumstance of the water having passed by the rectum for a long time before his death, induced me to examine the intestine with peculiar care.

The veins in the rectum, just above the sphincter, formed a considerable varicose cluster. In two points, but particularly in one, an angle of one of the enlarged vessels projected beyond the rest, towards the cavity of the bowel. At these points, for an oval space, near an eighth of an inch in length, the dark-coloured blood within the veins was so clearly apparent, that it might almost have been doubted whether there was any substance at all interposed between it and the eye. On a minute examination it appeared that at these points the coats of the vein and the internal membrane of the bowel were undergoing a progressive absorption, consequent to which any trifling circumstance might have produced a rupture of the thin film that remained between the venal blood and the cavity of the gut. From the appearance of these points it

was evident the change was progressive and slow. Observed under a magnifying glass, the blood was most evident, and the absorption of its covering membranes consequently most nearly complete in the centre, from which to the circumference the discolouration became less perceptible till it quite disappeared.

This dissection clearly explained the principle on which a varicose vein gives way in the rectum; proving that it may, and probably does, occur, whenever such vessel is so raised beyond the general surface as to be particularly exposed to pressure from the transmission of indurated contents through the bowels, such pressure operating by exciting irritation, and absorption, as its eventual consequence.

CASE 92.

Extreme Hæmorrhoidal Irritation, cured by the Bougie.

Nov. 23. 1822. I was requested by Mr. HARDY of Walworth, to visit a young lady, a patient of his, who had previously seen several physicians and surgeons, having for near six months suffered the most extreme distress and pain, apparently from some very small hæmorrhoidal tumours; to alleviate her misery, every internal medicine, capable either of allaying pain or regulating the action of the bowels, and every anodyne sedative or astringent local application, had been tried, without affording the least relief. The tongue was white; the pulse 100, small and weak; the strength and flesh rapidly wasting.

On examining the parts outwardly, I at first conceived there was a small hard tumour behind the integuments at the margin of the sphincter, but the finger gently passed into the bowel, it turned out to have been a spasmodic and painfully contracted state of the sphincter, which once overpowered, became relaxed, thin, and comparatively

painless. The hæmorrhoidal tumours, as Mr. HARDY observed, were too inconsiderable to explain so much distress as this young lady had suffered.

The state of this lady's habit was evidently irritable, and although opiates had failed to relieve, it appeared to me probable the temporary suspension of spasm, by dilatation of the sphincter, might prove useful, and perhaps do more than was expected. It was therefore determined in consultation, that a large wax taper should be introduced through the sphincter, and retained an hour daily; a light bitter and aperient draught be given every morning, and a saturnine lotion, occasionally used, as a local application.

Nov. 30. The wax taper had on the preceding day broken in the bowel, and its removal was attended with distress; but the patient thought she had less of the peculiar pain within the sphincter than before. The opinion Mr. HARDY and myself gave was, that in so far as the peculiar internal pain was considered easier, the complaint must be better, for that every approach even to a more open and tangible state of disease, must be held to be amendment. The treatment was continued; but a metallic bougie, five-eighths of an inch diameter, was now used.

Dec. 14. Very much easier, and greatly relieved from the peculiar pains in and about the sphincter. On close enquiry it appeared, that till within the last week she had long been unable to sit up at all, from increase of pain in that position; but now she could do so for half an hour together. The pains also were now not only much less severe, but much less frequent. Before using the bougie, her rest was frequently disturbed by violent accessions of pain, waking her so often that she could hardly be said to sleep at all; but now she was scarcely ever disturbed by it through the whole night.

Jan. 12. 1823. The "peculiar pain" within the sphincter "so much diminished, as to be nearly

quite gone.” The instrument had, except on one day, been regularly passed, for the last month. The little tumours at the verge of the sphincter remained as at first; but her distressing complaints now removed, she was enabled to sit, and move about, with comfort. This lady’s health still remained defective; with bad appetite, extreme confinement of bowels, and suspension of the catamenia. These, however, being more particularly medical points, to the consideration and relief of which no one could be more competent than the gentleman under whose care she had previously been, I took my leave; with a request that the use of the instrument should be still continued for another month.

CASE 93.

Extreme Hæmorrhoidal Irritation with Hæmorrhage; cured by the Bougie.

Feb. 19. 1823. I was requested to visit Mrs. C. a young married lady, who for eighteen months had been subject to constant uneasiness, and often great pain about the sphincter, with occasionally frequent and severe bleeding from within the bowel. This had been attributed to internal piles, with which the cavity of the bowel above the sphincter was reported on examination to be surrounded. There was no appearance of fulness outwardly, except after exercise, or fatigue. Ward’s paste, taken for six or eight weeks, relieved, and at first seemed to have cured her; but it soon lost its effect, and eventually did nothing.

The sense of heat, smarting, and pain in the part, not only distressing in passing a motion, but especially through the night, prevented sleep, obliging her to be up half the night, with fire and fomentation, applying poultices; which relieved, perhaps in half an hour, till the poultice losing its heat, she was as bad as ever again. She could just

sit up, or walk gently in the house, pretty well ; but was otherwise a prisoner, being unable to endure the motion of a carriage. The bowels also, never acted without violent medicine, of which she had taken both variety and quantity. The tongue was white, pulse small, 110. She observed that her complaints made her uneasy, being within three months of her confinement ; although her three former labours had terminated extremely well. To regulate the bowels, a tonic and aperient mixture was directed.

March 10. A metallic bougie five-eighths of an inch diameter was passed ; it excited a glowing sense of heat, and pain, which increased, till in half an hour the instrument was withdrawn, when the distress soon subsided. This pain resembled that felt in passing a motion, quickening the pulse, and bringing out a copious perspiration. From this time the bougie was passed daily.

The medicine, regularly taken, answered well, and had much improved her health ; but within the last few days, the bleedings had returned, rather severely.

March 22. From the 10th to this date the instrument was regularly passed. Once, while the bowels were too relaxed, considerable bleeding occurred, but then only. For the last few days, the bougie (usually kept in half an hour) excited much less distress, and scarcely any heat. Since the bougie was first passed, she had not once been so disturbed by pain at night as to require fomentations.

March 25. The medicine last directed was decoction of bark \mathfrak{z} iiij. ; Compound Infusion of Gentian \mathfrak{z} iv. ; Sulphate of Magnesia \mathfrak{z} iss. ; and Tincture of Senna \mathfrak{z} i. Three table-spoonfuls to be taken once or twice a day. A small dose of this she said answered “ with better effect, and more perfect ease, than any thing she ever had taken.”

April 5. The instrument, now borne with difficulty for half an hour, excited very acute pain, and much suffering; the same being felt upon passing a motion. From these circumstances bark appeared objectionable, castor oil was therefore directed, and the mixture laid aside. The bougie directed to be introduced only every second or third day.

April 12. This lady had suffered much pain, owing, as appeared on examination, to a small hæmorrhoidal tumour having formed at the margin of the sphincter.

Upon consideration, I now advised the instrument to be laid aside; being of opinion that although she still suffered much from irritation, this was justly attributable to the inconveniences incident to the near approach of her confinement; observing, at the same time, that I had still no doubt the principal object of the operation in the consolidation of the parts within the sphincter, was either partially, or perhaps perfectly, effected; and that consequently there was so much the less risk of violent bleeding taking place, that might go on to such an extent, as to deprive her of the power of suckling her babe. At present nothing more was to be done, except having occasional recourse to castor oil.

June 18. I made a call upon this lady, and had much pleasure in hearing that the favourable change I had hoped for, had taken place. She had been a month confined, was very well in health, was suckling a very fine large child, had suffered no bleeding, the irritation nearly as possible quite gone, added to which it was now more than a fortnight that the bowels had acted easily, punctually, and spontaneously, every day.

CASE 94.

Hæmorrhoidal Irritation; relieved by the Bougie.

IN the early part of *March*, 1823, I called, at Mr. HEAVISIDE's desire, upon Miss P. aged 32, suffering under a complaint which began near six months before, with pains in her bowels and inside, and extreme irritation about the perineum, inducing violent pain and difficulty in passing her motions. She was not able to move even about the house, without great aggravation of her distress. Previous to my seeing her, there had been some inflammatory attack in the left side of the abdomen, for which she had been repeatedly bled, and blistered. The irritation in the perineum, in its early progress, had been attributed to piles; and a person had professed to cure these at once, by an extensive application of caustic, which after a varied scene of more extreme suffering, left the complaint where it was. Subsequent to this, the inflammatory irritation about the sphincter was much alleviated, by an ointment containing powdered chalk. An impression upon her own mind was, that the extreme pain, difficulty, and small size of her stools, must arise from an obstruction or stricture in the lower part of the gut; and indeed this had been the opinion of several of her professional attendants.

To determine, as far as possible, what was the real seat of disease, I first injected and examined the rectum, by a large sized silver ball; the introduction gave much pain, but past the sphincter, it was felt no more, gliding quietly along, and finding thirteen inches of the bowel free, and healthy.

It appeared to me that the irritable state of the sphincter was the cause of all her suffering; and that this was a case in which the bougie would prove useful. I therefore passed one, every second day. The pain at first produced, gradually di-

minated. The instrument was generally retained near an hour.

In the course of three months the distress in passing motions, and the extreme irritation under exercise, had progressively declined, and were so nearly gone, that she was able to walk with pleasure and profit two or three miles every day. Her rest at night and appetite by day as much increased, as her complaints had diminished, I considered it unnecessary she should longer continue the use of the bougie, and she was consequently advised to return home, and left London on the 20th of *May*.

CHAPTER VI.

ON FISTULA IN ANO.

SECT. I.

On the Causes of the Disease.

260. THE cellular and adipose substance surrounding the verge of the anus, in common with the same texture elsewhere, is subject to inflammation and abscess. This may arise here from any of those causes known to produce similar changes in other parts of the body ; — any external violence ; any irritation within, or near the extremity of the rectum ; and particularly that excitement sometimes consequent to fever. A severe cold frequently operates as a cause ; excessive fatigue also has, in some instances, apparently been the means of inducing inflammation and abscess near the anus.

261. The causes productive of fistula in ano, will, as to their mode of operation, very much depend on the habits and health of the patient. Where the health is bad, or where the constitution is highly disposed to scrofulous action, I have known the most trivial circumstances bring on a train of ill consequences of so serious a description, as to baffle the best efforts of surgery *, when, however, the habit being sound, the case is early attended to, the most violent attack, or most alarming accident, frequently proves perfectly

* Case 100.

manageable, terminating well beyond any reasonable expectation.

SECT. II.

On the Symptoms and Appearances.

262. The existence of a sinus, or, what has been termed a fistulo in ano, has been supposed to indicate in every case a depraved habit, and in particular an unhealthy condition of the parts affected. This, however, is by no means true. The mere production of a sinus is a circumstance dependent upon a general principle that should never be lost sight of by the practical surgeon, being as frequently applicable to other kinds of abscess, as to that now under consideration. Observation evinces that, wherever an abscess forms in cellular membrane, the matter is apt to burrow, where it meets least resistance; in other words, it is disposed to extend the limits of the abscess in whatever direction the cellular membrane is most relaxed: upon this principle the matter frequently makes its way to some extent along the rectum, penetrating between the coats of the bowel, and forming a narrow sinus, or fistula.

263. The early stage of the inflammatory attack, in the young and healthy, usually presents a circumscribed prominent tumour, heated, red, and painful; with quickened pulse, hot skin, thirst, and white tongue, dependent on constitutional sympathy. Under neglect, or mismanagement, this re-action of the system will sometimes occasion high fever, and delirium.

264. Phlegmonous or healthy inflammation in these parts would, perhaps, generally terminate in suppuration, were nothing done for its relief; but inflammatory action so readily extends itself, and the various organs in the immediate vicinity are so delicate in their structure, and so important in their functions, that decision is no less necessary

than discrimination at the onset of the attack, to ensure, as far as possible, a favorable event.

In no case that I know of is neglected inflammation productive of more permanently distressing consequences to the patient, than in the present complaint; although this is one of the many truths the real importance of which is seldom duly appreciated till it is learned by painful experience.

265. In some instances a considerable degree of constitutional excitement may attend local tumour, more extensive, and less distinctly circumscribed than the above, the dull red colour, and the less elastic feel of the parts exhibiting the characters of erysipelas. There may, in this case, be more disease of cellular membrane, but the suppuration will be less perfect, and less plentiful, than in phlegmonous inflammation.

266. Occasionally the inflamed parts may assume a lurid and dusky colour, and although harder than natural, there shall be less tension than belongs either to phlegmon or erysipelas; the pulse being full and hard, the thirst great, and the restlessness fatiguing. In this state of things, unless the patient is soon relieved by medicine, the pulse, strength, and spirits, all give way together, and sink to an alarming extent. Should matter be formed, it is, as Mr. POTT has well observed, small in quantity, and bad in quality, the cellular membrane being extensively sloughy and gangrenous. This is the "*suppuration gangreneuse*" of the French authors.

267. Some degree of irritation at the neck of the bladder generally attends the formation of matter in its neighbourhood. This may excite uneasiness in making water, or anxiety to void the urine, or produce so much spasm, as to bring on a total retention of urine. From the same cause may arise temporary irritation, or painful fulness at the lower part of the rectum, inducing an irksome bearing down, hæmorrhoidal tumours, fre-

quently confinement, but now and then relaxation of the bowels.

268. When an abscess is formed, a part of the surface becoming softer than the rest, the skin usually gives way, allowing the escape of the contents. Sometimes, however, I have found the first discharge arise from the sinus having burst into the intestine.* The most common state presents a single external opening near the anus, generally with a sinus passing up by the side of the bowel; in other cases there is one opening from the abscess externally, and another by the sinus into the cavity of the intestine.

269. The late Mr. POTT, in his excellent treatise upon this subject, has stated that fistulous complaints do not very unfrequently stand upon a venereal basis; and so far as the existence of sinuses communicating with the neck of the bladder, and also with stricture in the urethra, may confirm such opinion, I have myself, in repeated and frequent instances, had the care of cases decidedly of venereal origin.

270. The appearances that occur in the examination of a sinus, or fistula in ano, are usually confined to an ulcerated space, more or less extensive in the adipose membrane near the anus, connected with a narrow canal or sinus, admitting a probe to pass for some extent upwards between the coats of the bowel; communicating with the cavity of the intestine, or not, as it may happen. The parieties of the abscess, in healthy inflammation, demonstrate the induration consequent to effusion of coagulable lymph into the cellular texture surrounding the cyst; the same appearance being to a certain degree generally perceptible along the line of the sinus immediately connected with the intestine.

271. In erysipelatous inflammation, and espe-

* Case 17.

cially in the gangrenous suppuration, the cellular membrane exhibits the principal traces of disease; in the former case this texture is usually inflamed, and disposed to slough; in the latter it is found more extensively sloughy and gangrenous.

272. Those cases in which abscess takes place within the pelvis, or high up towards the loins, generally derive their formidable character from the circumstances under which matter is deposited, as it is almost invariably found to have injured, or destroyed, some part of one or other of the bones of the pelvis; and even the importance of these cases is, upon enquiry, generally found to have been derived from long neglect on the part of the patient. In one case of diseased hip, connected with a sinus that passed over the tuberosity of the ischium, I found, on dissection, three or four fragments of the bone carious, separated, and black; one of the fragments had partly made itself a passage out through the soft parts. I have seen several other cases nearly similar; but in examining one where an abscess behind the rectum had formed within the sacrum, I found the peritoneum thickened, sloughy, and separated from nearly the whole concave surface of the bone, which was consequently bare, and black as charcoal; the open texture of the necrosed bone being saturated with a dark-coloured, offensive, purulent fluid.

SECT. III.

On the Treatment.

273. IN the treatment of phlegmonous inflammation near the anus, should the local heat, pain, and tumour, be considerable, we must sometimes have recourse to blood-letting. If the habit and pulse are full, as well as disturbed, a vein may be opened in the arm; in other cases it will be sufficient to take away a much smaller quantity near the seat of the affection by leeches, or cupping.

This measure may occasionally be expedient, not so much to prevent suppuration, as for the more important purposes of moderating the extent of inflammatory action, and promoting the favourable operation of the other means of relief.

274. The assiduous use of fomentations also is to be directed, and continued till the abscess is formed, and its contents discharged.

275. The central part of the tumour becoming soft, the external skin may be permitted to become thin, before it is opened with a lancet; when this opening is made, it must be prevented from closing directly, by the insertion of a few threads of lint. After the abscess is opened, the parts may still be fomented for a few days, till all the inflammation, and most of the surrounding hardness, have subsided. Under these circumstances the cavity of the abscess, provided the discharge is healthy, will contract apace, and be very soon healed.

276. Abscess near the anus will frequently heal, even under total neglect; but it generally happens, under these circumstances, that the parts do not entirely recover their healthy feelings, but on the contrary, remain subject to permanent uneasiness and irritation. *

277. If the abscess does not heal readily, or should the flow of matter be greater in quantity, or worse in quality, than it ought to be, a probe gently introduced, will easily determine whether a sinus exists, either towards the bowel, or in any other direction.

Should febrile symptoms be urgent, they may be relieved by some of the means already suggested (50.), without interfering with the other objects, which must, in the present case, be held in view.

278. In the second kind, or erysipelatous inflammation, bleeding is but seldom proper, neither will

* Case 98.

the patient bear the free adoption of other evacuations. The occasional use of gentle aperients, however, will be essentially useful. Warm and emollient fomentations must be applied, and when suppuration commences, although it may be imperfectly established, it will be right to make an opening, which, by allowing the escape of matter, will diminish the risk of further extension of disease in the cellular membrane.

279. In the third kind of inflammation, hot spirituous fomentations must be applied; free incisions be made into the diseased parts, and recourse be immediately had to medicines. The patient should be directed the cinchona, in combination with other tonics and opiates, so administered as to afford the most effectual aid in restoring a broken constitution.

280. Where, from the formation of abscess, irritation, or spasm takes place at the neck of the bladder, opiates, and a free use of mucilaginous decoctions, will generally procure relief. When this affection goes on to retention of urine, anodyne relaxation must still be the leading principle in treatment, aided by evacuations from the bowels, and also by blood-letting, together with fomentations, followed by an emollient and opiate glyster.

281. Irritation excited in the rectum, may be relieved by the gentle operation of some mild aperient, or the exhibition of a warm emollient injection. Should obstinate costiveness occur, from the accumulation of hardened fæces, no time must be lost in procuring relief; for while this state continues, every symptom will be aggravated. Repeated aperients, the injection of laxative glysters, in some cases assisted by the abstraction of blood, will be the proper means; neither must they be laid aside till there is reason to feel assured that the bowels are cleansed, and the system consequently relieved, from that which experience

teaches, may otherwise prove a source of infinite irritation, and many distressing symptoms.

282. When abscess is formed, and its contents have been discharged, it will in general be proper to ascertain whether a sinus exists or not. If such be found, the sooner it is divided the better. In effecting this division, every surgeon who duly regards his patient's feelings, and his own character, will prefer that mode of operating, which accomplishes its object with the least pain, the least delay, and the greatest certainty of a successful event; and this mode is most certainly that in which the division is made with the probe-pointed bistoury.

283. In performing the operation for fistula in ano, a probe first passed into the sinus traces its direction and extent along the side of the gut. The fore-finger of the other hand, previously oiled, is then passed through the sphincter, so as to feel distinctly the point of the probe; this being withdrawn, the bistoury is to be lightly and gently introduced in its place, till the point of the instrument in the sinus is made to press against that of the finger in the rectum. In this stage of the operation, should no direct opening be found from the sinus to the bowel, the least additional pressure of the point of the bistoury against the finger may be made to bring them into actual contact. The point of the finger now becoming a guide to the bistoury, presses the instrument on before it, so that while the finger is gradually withdrawn, the bistoury is made to cut its way out, and the operation is finished.

284. The parts are to be lightly dressed with a narrow slip of fine lint, carefully introduced along the course of the sinus, in such manner as to prevent the union or contact of the recently divided parts; for unless this is prevented, the operation may fail.

285. Where the abscess is large, or the habit

unsound, sinuses are frequently found passing in various directions beneath the integuments. These must be severally laid open, and regularly dressed in such manner as to give a gentle stimulus to the parts, and prevent any lodgment of matter.

286. In the many operations of this kind I have either performed myself, or seen performed by others, some few have been attended with considerable loss of blood. But I have never known an instance in which there was the least real difficulty in restraining the hæmorrhage. The most vexatious case that has ever occurred to me, with its treatment, will be mentioned presently. *

287. Occasionally, though rarely, the disease is not capable of cure by the above means. Where the constitution is unhealthy, whether from age, debauchery, or other cause, difficulties may arise. In one case, as fast as the divided sinuses heal, others form, and are unexpectedly discovered; in another, the sinuses, when laid open, will not heal, pouring out, for a tedious length of time, a thin offensive discharge. Under these circumstances, recourse must be had to medicine, with a view to improve the tone, increase the strength, and diminish the irritability of the system. In these cases, I have sometimes found change of air effect that improvement of constitution which medicine had failed in accomplishing.

288. It may happen that, either from inattention or ill health, the constitution may be so reduced as to render the immediate performance of the operation unadvisable; medicine must be directed, and as the appetite becomes established, and the strength restored, the state of the local complaint will be observed to improve, till at length the parts assume the appearances of health, previous to which an operation would be at least useless, if it had no worse tendency. †

* Case 99.

† Case 100.

289. Now and then it may be difficult to determine accurately on the state of constitution, till after the operation; when the patient shall rapidly decline into a state of unexpected laxity and exhaustion, requiring the most vigilant, active, and persevering attention, to ward off a threatened ill event. *

CASE 95.

Fistula in Ano.

A.P. aged forty-three, applied to me, *September 15. 1819.* For two months she had experienced a distressing uneasiness and bearing down, when moving about, particularly upon sitting down. There was also a sense of heat, with a pain which she thought proceeded from a swelling forming within the bowel. These symptoms were greatly aggravated upon going to stool.

In the course of a few days, inflammation was evident externally, with tumour and extreme pain in the right side of the sphincter. Poultices were applied, and in eight days she was relieved by the bursting of the abscess, which discharged abundantly.

The first abscess broke on the 26th of *August*, but a second inflammation succeeded, and after several days' severe pain some matter escaped by the former opening, *September 13th.* On the 15th I first visited her, and on examination found a sinus running to the extent of three inches between the coats of the rectum. At her own request I immediately introduced a bistoury, and divided the sinus. The operation was attended with little bleeding, and less pain. Under the usual treatment she went on so well, that on the 23d of the month she was walking about the room, without the least pain or tenderness; and on the 29th, (the 15th after the

* Case 69.

operation) I found that for several days there had been no trace of discharge; on examining, the sinus was found perfectly healed, the cavity of the rectum being cool, quiet, and in its natural state.

CASE 96.

Fistula in Ano.

J. D., aged thirty-six, came into the Infirmary, *August* 19. 1818, with a purulent discharge, consequent to abscess at the verge of the anus. On examination, a fistula, extending near two inches along the side of the gut, was discovered and divided. No material bleeding followed, nor any other particular circumstance either at the time or subsequent to the operation; which enabled the patient to leave the Infirmary, perfectly cured of his complaint, on the 7th of *October* following.

CASE 97.

Fistula in Ano.

A COACHMAN, aged fifty, applied to the Infirmary, *February* 11. 1820. Many years subject to piles, he was attacked on the 2d instant with pain at the verge and within the sphincter of the anus, which obliged him to keep his bed. A considerable tumour had formed, extremely painful to the touch within the bowel. On the 8th, there was more softness and less heat in the swelling, to which fomentations were continually applied. On the following day it broke, and gave him relief by a free discharge. On the 11th, I found a fistula passing for an inch along the side of the gut, which I divided without any material bleeding or pain. The sinus did not open into the bowel. Within three weeks it was perfectly healed; and the man returned to his work.

CASE 98.

Abscess in Ano.

A GENTLEMAN came to town to me, *October 10. 1820*, complaining of frequent uneasy sensations at the verge of the anus; in a spot where there had been a small abscess two or three years before, which after some time healed spontaneously. He observed, that ever since, he had been subject to pain or uneasiness in the part, after fatigue or exercise. The rectum examined, was healthy, but in a lateral point within the sphincter, he said he could feel the irritable spot, as also externally where a little apparent thickening existed.

I told him, that most probably he would be liable to return of inflammation and abscess from the first accidental cause, and that then it might be more easy to cure his complaint, and effectually prevent its return, than at present; and that as to the peculiarity of his sensations, they appeared to depend on the parts not being yet restored to a state of perfect health.

CASE 99.

Fistula in Ano.

A MAN, aged thirty-two, was admitted into the Infirmary, with abscess near the fundament. On examining, I found an extensive sinus, between the coats of the bowel. As the parts were healthy, and the poor man desirous of relief, I performed the operation immediately, laying open the whole length of the sinus, and dressing the parts in the usual manner. In the course of the evening, I was requested to visit him, and found he had been bleeding for the last hour, and from the state of the clothes it appeared that he had lost near a pint of blood. His pulse was much softer than natural. I therefore desired the whole of the bed-clothes to

be thrown aside, and that he might be laid on his face, with his head lower than the rest of his body, his hips being raised upon some bolsters and pillows. The parts, thus exposed to a current of fresh cool air, were kept covered by a succession of clothes dripping wet from a pail of cold water, and changed every five minutes. These means, which immediately arrested the hæmorrhage, were however directed to be continued for a few hours, after which a sheet was thrown over him, and on the following morning he was allowed to resume a comfortable position in bed. This man was discharged, perfectly cured, within three weeks after the operation.

CASE 100.

Fistula in Ano.

IN 1817, a poor man was admitted, at the age of sixty-three, into the Infirmary. His complaint had originated in an abscess that had formed about seven weeks before, near the anus. The integuments were rather extensively separated from the parts beneath, the ulcerated cavity secreting an excessive quantity of unhealthy and foetid purulent matter. The low pulse, extreme debility, and great emaciation, were so many proofs of the injury already sustained by a shattered constitution. A probe readily found a sinus passing along the side of the rectum for more than three inches within the sphincter.

The state of the case was such as to forbid the performance of any operation, till by attention to diet and medicine, the ill condition of his habit might be improved, and his strength in some degree restored. With this view, every attention was paid to the daily regulation of his diet, and the same regard shown in the adjustment of his medical treatment; but notwithstanding every exertion made for his recovery, he lost ground; his appetite and strength continued to decrease, and

about a month after his admission into the house, he died.

CASE 101.

Hæmorrhoidal Abscess, with Fistula in Ano.

June 26. 1821. I was desired, with Dr. JAMES, to visit a gentleman, who from severe horse-exercise had pain and heat come on near the sacrum, followed by inflammation and tumour at the side of the anus. Cold applications failing, it was brought forward.

July 15. It was my intention, as the abscess lay close to the skin, to open it, and divide the sinus, if one existed. The matter evacuated, a probe was passed in, and went up for an inch and a half near the rectum; but passing the finger into the rectum, I felt so strong a pulsation from an artery directly in the way, that taking a debilitated constitution into the account, I was induced at least to postpone the risk of any considerable bleeding, and so dressed the wound. The medicines directed were, bark, with sulphuric acid.

Nov. 25. He had within the last week been much reduced by a smart attack of erysipelatous inflammation, during which the healed portion of the abscess became again ulcerated.

May 16. 1822. For some months past, the bowels, without obvious reason, had totally ceased to act, unless when excited by active and powerful medicines. The external ulcer small, still furnishing too much discharge, it was determined in consultation, to wait no longer, but examining completely the state of parts, act at once as might be necessary. By a small opening, the probe progressively found an extensive sinus. Examining the bowel, I passed my finger through the sphincter, and found above it a firm transverse ridge passing across the posterior part of the intestine; it appeared to have been the effect of preceding inflammation, and was neither irritable, nor tender.

I could not now discern any beating artery, but felt the end of the probe, passing into the projecting ridge within the bowel. With the doctor's approbation I passed the whole length of a long bistoury into the sinus, and made a complete division of it; and dressed the parts up with lint, without any material bleeding.

From this time every thing went on well, and what was totally unexpected, the bowels, from the day of the operation, acted spontaneously with perfect regularity, by which it would appear, that the irritation from the unhealthy sinus, had kept up a degree of permanent spasm in some part of the bowels, unfavourable to their action, which was at once removed by converting the whole into an open, granulating, and healthy surface. The colour and appearance of the motions also, which previously were pale, and devoid of bile, became, subsequent to the operation, improved and healthy. The extent of the wound required the finger to be daily passed into the rectum, directed by which, a broad fold of lint, upon a silver spatula, was carried along the wound, quite to the upper extremity of the sinus.

July 27. The parts very nearly healed; with an equable and gradual diminution of discharge.

Aug. 28. Had just suffered an attack of indistinct gouty inflammation in the left great toe, which was heated, swelled, and painful for a week.

Sept. 6. For the last three days a fair and smart attack of gout had seized upon the great toe of the right foot.

Sept. 9. Yesterday, the foot becoming easier, the affection had seized upon the knee; and to-day he was suddenly attacked with vomiting, purging, and most alarming sense of fulness about the head. The little remaining ulceration dry, and unhealthy.

Sept. 12. Yesterday, the affection of head was such, that Dr. JAMES found it necessary to direct

two blisters; the gout was flying about the shoulder, throat, head, and neck.

Oct. 5. After a trifling attack of erysipelas, the ulcer resumed its healthy appearance, and in the course of a week became perfectly and permanently healed.

CASE 102.

Scrophulous Fistula in Ano.

A MARRIED woman, under thirty, applied to Mr. SPILSBURY for assistance, for fistula. On examination, a sinus presented itself within an inch of the anus; it was a gaping smooth orifice, with hardened edges. In the middle of the nates, three fingers could be inserted into the orifice, and the middle finger could feel bands contracting the passage: but the finger could be passed under the illium, close upon the bone. Another course branched up by the side of the cleft of the nates towards the sacrum; added to these there were two blind passages of sinuous course, running along the side of the rectum, the left one of which nearly made a communication with the gut, two inches or more within it.

On looking at her countenance, it was truly scrophulous, fair, red, and white, with prominent sparkling eyes, large pupils, but the maxillary protuberance of the left cheek certainly greater than that of the right.

Attention was paid to the constitutional symptoms, and her health improved. She stated, that the first consequence of her illness was a large tumour, which was opened in its deep seat. This had discharged copiously, bringing her health into great jeopardy, and threatening a phthisical termination in a highly nervous irritable habit. The very proposal of an operation destroyed the appetite for several days, inducing diarrhœa. Injections had had a fair trial, no chance of recovery

offered, unless by mending the habit ; assisting at the same time the local condition of the parts. Pressure, with lead and bandage, was for some time persevered in, with little change of action. Mr. SPILSBURY therefore introduced a bistoury, cutting asunder the bands in the passage, and pressure was again resorted to, but still the healthy process was not much advanced. A curved rectum trocar was next introduced at the nates, conducted up under the illium, pushed out through the fascia lata on the external side of the thigh, a seton inserted, and the sinuses near the gut divided in their full extent.

The seton was retained till the moving it produced bleeding, by the friction, when it was withdrawn. From *May 7* to *August 10*, her condition was so much mended, that she followed her household occupations, and visited Mr. S. twice, improving much in every respect, a distance of three miles ; when it appeared that time alone would complete her cure, especially as the catamenia had returned. He requested to see her occasionally, but this she neglected, till within a week he was again sent for. She said she had taken cold ; her thigh had gathered and discharged copiously, a highly foetid matter. The sinuses still existed, though much contracted, secreting a gleety lymph ; but the skin was thickened and the cellular membrane with a puffy tumour, upon a spot or two of which a little fluctuation might be perceived. She was now placed under a course of sarsaparilla, and liquor potassæ ; with diligent frictions of camphorated mercurial ointment.

CHAPTER VII.

ON THE HÆMORRHOIDAL EXCRESCENCE.

SECT. I.

On the Causes of the Disease.

290. THE hæmorrhoidal excrescence is commonly a small soft fungous growth, situated at, or near, the verge of the anus. This disease has sometimes been confounded with the hæmorrhoidal tumour, but the two diseases differ completely in structure, and mode of production, and require very different methods of treatment.

291. The hæmorrhoidal excrescence has by some writers been referred, in every instance, to a venereal origin, and it certainly does most frequently spring from this cause; but it occasionally takes place, as I have myself seen, in those who never had a venereal complaint; and WISEMAN says he has met with it in an infant.

292. Persons of a relaxed constitution, who with much exercise perspire freely, may be considered to be in circumstances favouring the production of this complaint, unless extremely attentive to cleanliness. In one instance, I have known the acrid fumes of burning sulphur bring on an affection of the skin, terminating in this disease. *

293. When this disease is produced from a venereal cause, it appears to be mostly connected with gonorrhœa, and I believe is generally brought on by this alone; from the purulent matter, by

* Case 86.

means of the linen coming in contact with the verge of the anus, which in this way may excite a similar discharge from the mucous membrane lining the sphincter, acquiring a peculiar acrimony, and eventually inducing that unhealthy state of the cutis round the verge of the anus which generates the excrescence. In these cases the disease is on examination found to excrete a foetid ichorous discharge, excessive in quantity, and extremely offensive in quality.

SECT. II.

On the Symptoms and Appearances.

294. HÆMORRHOIDAL excrescences are generally numerous, very rarely single. They usually make their appearance near the margin or verge of the anus; and generally arise from the inner membrane of the sphincter. WISEMAN, to whose extreme diligence, discernment, and candour, the Profession are indebted for much practical observation in surgery, relates a case of this kind in which so many excrescences had formed, as to render it difficult to find their insertion. Five of the largest exceeded the length of an inch and a half, and were attached by narrow peduncles to the integuments; while some were found springing from the inner membrane of the gut, fairly beyond the sphincter.

295. M. LIEUTAUD observes, that in examinations after death, they have been found attached to the internal membrane of the rectum, in such number, as to have hindered the passage of the contents of the bowels.

296. Hæmorrhoidal excrescences are either of a bright or a dull red, or lurid colour, of a fungous consistence, easily broken, and readily made to bleed. This is as I have found them, but M. SWEDIAUR observes they are sometimes hard and firm; and they have been described by Mr. B.

BELL as occasionally acquiring the consistence of the firmest scirrhus. The last-mentioned gentleman observes, that “these excrescences seem all to be productions of the cuticle;” but, as far as observation and experience have hitherto enabled me to judge, they appear in every instance to originate in disease of the cutis, and not the cuticle.

297. M. DELPECH, who has taken a comprehensive, and, in most particulars, a very correct view of the present state of surgery, observes upon the hæmorrhoidal tumour, “*ce que l’on designe par le terme commun d’hæmorrhoides, consiste le plus souvent dans une alteration analogue à ce que nous décrirons ailleurs sous le nom de fungus hæmatodes;*” and from the description, as well as treatment recommended, it appears that the tumour and the excrescence are considered to be only two varieties of one and the same disease; which was precisely the opinion of AMBROSE PARE, in the year 1579.

298. It is certainly true that both these forms of disease may occur in the same patient, but this circumstance alone is no proof of their identity. The hæmorrhoidal tumour is seated in the cellular membrane beneath the skin; the excrescence in the skin itself, or the mucous membrane contiguous with it. The hæmorrhoidal tumour is formed by a deposit of blood, either in dilated veins or cells; the excrescence, on the contrary, is a fungous growth, the vessels of which I believe in no instance enlarge, or pour out their blood into cells.

299. M. LIEUTAUD, speaking of the hæmorrhoidal excrescence, was aware of the importance of the distinction, for he says, “*Ces tubercules, qu’on doit bien distinguer des hæmorrhoides flétries, occupent les bords de l’anus.*” The truth is, that both the disease, and the treatment, involve considerations of much higher importance in the one case, than in the other.

300. The hæmorrhoidal excrescence is occasionally connected with the appearance of cracks or fissures, proceeding outwards from the sphincter, in the natural plaits or folds of the skin. These fissures, usually attended with an offensive discharge, so exactly resemble the rhagades that occur in venereal disease, that they have very properly been regarded as a decisive mark of venereal taint in the constitution.

SECT. III.

On the Treatment.

301. THE treatment required will be either local or constitutional. As a local disease, hæmorrhoidal excrescence may be readily cured in almost every instance. Where the excrescences are numerous, and mostly small, they may conveniently enough be removed, by snipping them off with a pair of sharp scissars. In some cases the scalpel may be preferred, where the basis is broad, or extensive. Should the excrescence be single, or the patient averse to the knife, a single ligature may be applied round the base of the part to be removed; or if the base is broad, a double ligature upon a curved needle passed through the centre, may be tied on each side.

302. From the structure of the disease, it is obvious that bleeding can never claim attention, in whatever manner the removal of the excrescence may be effected. Upon the adoption of excision, a little lint constantly wetted with some cold lotion may be laid upon the parts for a few days; they will thus be kept cool until the skin heals over. When the ligature is applied, fomentations may be useful should much pain follow the operation.

303. Where the excrescences are connected not only with a discharge, but with cracks and fissures of the skin, the application of some of the various sedative or astringent solutions, containing either

acetate of lead, or the sulphates of copper, zinc, or iron, may be directed. Should these fail, alterative medicines may be tried. I have never met with a case where this disease has required the full effect of mercurial excitement in the system for its cure ; but it is reasonable to suppose the case may occur, and it will then be necessary to subject the patient to precisely the same means and management adopted for the eradication of any other direct venereal symptom.

CHAPTER VIII.

ON THE MEANS BEST CALCULATED TO ESTABLISH
A REGULAR STATE AND ACTION OF THE BOWELS,
AS ESSENTIALLY CONDUCTIVE TO THE PREVENTION
OF MOST OF THE ABOVE DISEASES.

304. OF the numerous diseases to which the human frame is subject, there are but few, very few, that may not either be produced, or greatly aggravated, by habitual derangement in the functions of the alimentary canal. The accustomed usages of society; the nature and quantity of the food we eat; the modes of exercise and of rest, together with our manner of clothing; all appear to me calculated to interfere, more or less, with the regularity of action, and consequently with the proper functions of the bowels. Upon these considerations, however, I confess myself to enter with some degree of diffidence, after having read the comprehensive, and beautifully eloquent work of Mr. ABERNETHY, upon this subject.

305. The original intention of the great Author of nature may be partially traced, in the diversity of provisions appointed for enabling the animal machine to support itself under the various circumstances in which it may be placed. The different systems of parts of which the living body is made up, and the particular functions assigned to each of those systems, display, on many occasions, the most admirable facility, as well as power, of harmonizing with each other, for the promotion of the general good, and the maintenance of health; no one proceeding independently, but each moving

forward in unison with the rest. To point out, in illustration of the present remarks, the manner in which any accidental check to perspiration is compensated by an increase in the quantity of fluid separated by the kidneys; to observe how these glands will almost suspend their action when too large a proportion of fluid matter is passing off by the bowels in diarrhœa; or to advert to the temporary influence acknowledged by all the internal secreting organs under any material excess in perspiration, would be a superfluous task. As facts, these circumstances, and many others of a similar nature, are sufficiently familiar; they lead us at least to perceive that the general balance, for the regulation of which so many points have been wisely adjusted, is requisite and necessary for the general good of the economy.

306. The sedentary occupations unavoidably followed by multitudes in civilized life are unfavourable to health, and to the general diffusion of healthy action. The vigour of circulation fails, every impression from external cold is more sensibly felt, suggesting a necessity for warmer clothing; and the habit of clothing the body too warmly is not unfrequently the means of permanently destroying the balance that ought to subsist between the bowels and the skin. Many persons have an extreme aversion to active exercise, although almost every one must have observed that a brisk walk on a cool day, provided the clothing is not quite impervious, is conducive not only to refreshment, but to the natural action of the bowels. The best proof that we generally sleep much warmer than is proper, is, I think, afforded by those who, from some accident, have been confined for a time to their bed; they all leave it in a comparatively reduced and exhausted condition.

307. As to food, Mr. ABERNETHY very justly remarks, that the ease with which it is obtained is

one means of our swallowing much more than is necessary; and, as if excess in quantity was not sufficient, the very mode of its preparation is often such as to create heat, rather than promote digestion.

308. These, and many other circumstances have a tendency to establish the habit of confinement in the bowels: and, as the known duty of the intestinal tube is that of transmitting its contents, and rejecting that which is no longer useful for the purposes of nutrition, it is natural to conclude that where activity is deficient, it requires to be excited; and upon this ground, stimulating or purgative medicines have been administered.

309. Purgative medicines, then, have the effect of exciting the bowels to action, inducing them to pass forward their contents. Medicines of this description have also the power of exciting, more or less considerably, an increase in the quantity of fluids poured into the intestinal canal. *

310. There is yet another object to be regarded in the exhibition of purgative medicines, an object which is at least equal, or perhaps superior in importance to the rest; it is that of clearing the

* Since the preceding sheets were printed, I have met with a remarkable coincidence of observation, in Dr. MARSH's valuable cases, in the 1st and 3d vols. of the Dublin Hospital Reports. In one instance, that gentleman observes, "the quantity of knotted fæces which occupied the intestinal pouches was almost incredible; and this their condition the more claims attention, when it is known that alvine evacuations had been regularly maintained during the whole time of the residence of this patient in the hospital. There were fluid and watery stools, such as are frequently carried off by medicines, while scybala in abundance remain behind." In another place this observant physician says, "I have remarked, in dissection, that in those pouches in which scybala are lodged, the *mucous surface* against which they rest, *is frequently reddened and vascular.*" The latter of these observations, derived from the recent appearance, is precisely that to which I was myself led by injecting the bowel, in case 42; and the former are strongly illustrative of the truth of what has been already advanced (66, 67. and 120.)

bowels, not from the refuse of the food, but from certain unhealthy matters, the result of morbid secretion, proceeding either from the internal surface of the intestines, or from some of the viscera, immediately connected with them. The occasional existence of such matters has been adverted to by the earliest writers; but Mr. ABERNETHY is the first author who has placed them in a clear point of view, and given them their proper consequence, attributing to them, in many cases, an almost absolute influence in producing diseased structure, as well as disturbed function; although in a few instances, perhaps, the secret operation of this powerful cause of disorder has been somewhat over-rated.

311. A circumstance that occurred in the year 1808, while doing duty as Surgeon to the 82d Regiment, led me to believe, that in many cases of confinement of bowels, medicines may be so directed as to render purgatives unnecessary.

It happened that an elderly lady, residing at Scarborough, desired my opinion, requesting me to point out, if I could, some plan, by the adoption of which she might obtain a more regular action of her bowels. She had no complaint to make as to her general health; her appetite was good, and she slept well, neither did there appear to be any material defect in the condition of the digestive organs; the only objectionable circumstance being that of her scarcely ever passing a stool without the assistance of medicine. The advice, she said, she had always received from her professional friends, was, that, when confined in her bowels, she should still have recourse to opening medicines; she added, that really she had taken so great a variety, and so large a quantity, that she loathed the very idea of going on, and felt extremely anxious to know if any plan could be suggested to render it unnecessary.

312. On reflection it appeared probable that this

was an instance of deficient action from defective strength, and that, perhaps, by persevering for a time in the use of medicines calculated to restore tone, the bowels might recover the disposition, as well as the power, to propel their contents with regularity; at any rate, it appeared to me there could be no harm in making the experiment. I therefore first ordered the decoction and tincture of bark to be taken daily. This, in a week, appeared to have done neither good nor harm; there was no heat of tongue or skin; but there had been occasion for castor-oil. Decoction of bark was next directed by itself; and in three weeks she thought her inside felt stronger, with less disposition to flatulence than before. In consequence of this amendment the medicine was continued for a month longer, within which period she found there was no longer any occasion to solicit the action of the bowels at all, a regular and easy motion occurring every day. This restoration in the tone and action of the bowels appeared likely to be lasting; for there had been no return of the complaint a year and a half afterwards.

313. The adoption of a similar principle, with some slight modifications, has, in a variety of instances, enabled me to restore to the bowels the power of acting from their own impulse, without the perpetual necessity for being reminded of their duty. To set down particular instances would, I apprehend, be loss of time; neither have I preserved accurate notes but of very few. Some of the cases in which this treatment completely succeeded have been mentioned.* I might enumerate many others, the results of which were equally satisfactory. For the present, however, it will be sufficient to observe, that I have, in some instances, at first combined the decoction of bark with a fourth part the quantity of infusion of senna, or

* Cases 69. 79. 90. &c.

with that proportion which answered the purpose of regulating the bowels, occasionally diminishing the quantity of the aperient, till the action of the bowels was observed to go on well with the bark alone.

314. Under some circumstances, the decoction and tincture of bark will answer extremely well together ; but the decoction alone is, in general, less apt to require a temporary combination with Epsom salt, infusion of senna, or some other aperient.

315. If the innumerable train of ill consequences known to be induced by habitual confinement of bowels are adverted to, there will be no need to excuse the bringing forward any proposition that has for its object the prevention or removal of so great an evil ; more particularly while we continue to retain that sort of instinctive feeling which leads us to prefer food to physic.

I am not unconscious that we are all subject to feel the bias of attachment to our own opinions, for which reason the present remarks are brought forward rather as suggestions than as established truths, the practical value of which can only be absolutely determined by their being submitted to the test of more extensive experience. The ability of an individual is almost entirely confined to the power of stating faithfully what he may have watched attentively, within the comparatively narrow circle of his own personal observation.

INDEX.

A.

	Page
<i>ABSCESS</i> , abdominal, symptoms of - - -	96
———, an occasional effect from stricture -	29
———, contents of, passed by stool - -	97
———, symptoms of - - -	248
———, treatment of - - -	254
<i>Absorption</i> , means of relief, in stricture -	27
———, diminished power of, from ulceration -	104
<i>Accident</i> , may be occasionally rendered useful -	18
<i>Acrimonious fæces</i> , a cause of ulcerated bowels -	87
<i>Adhesions</i> , sometimes salutary, but not always -	94
<i>Adventitious bands</i> , occasional strength of -	18
<i>Alvine concretions</i> , analysis of - - -	23
———, symptoms produced by - - -	ib.
<i>Argentum nitratum</i> , solution of, a useful application -	109

B.

<i>Ball-probe</i> , advantages of, in examination - -	4
<i>Bands</i> , in the rectum, division of - - -	17
<i>Bath</i> , warm, great power of - - -	105
<i>Bladder</i> , irritation of, induced by abscess near the anus	249
<i>Blood</i> , passed per anum, no proof of ulceration -	98
<i>Bougie</i> , hurtful in schirrous stricture - -	29
———, objections to, in examination - - -	5
———, principles to regulate its use - - -	26
<i>Bowels</i> disordered, occasional difficulty in deciding on	88
———, easy state of, necessary in hæmorrhoidal dis- ease - - -	215
———, extensive portion of, passed by stool -	169
———, injured by external violence, may ulcerate -	91
———, irritable from preceding ulceration -	111
———, importance of relieving - - -	87
———, obstinate spasm of, treatment of - -	19
———, proper regard to, of the highest importance -	269

	Page
<i>Bowels</i> , scorbutic state of, allied to excessive irritability - - - - -	89
———, suggestions for establishing regular action of	272
———, ulcerated, symptoms of - - - - -	91
———, various modes of regulating - - - - -	271

C.

<i>Cancerous stricture</i> in the rectum, appearances of -	14
—————, medical treatment of - - - - -	30
<i>Capillary hemorrhage</i> , from the bowels - - - - -	99
<i>Cells of the colon</i> , occasional excessive irritability of -	100
<i>Cholera morbus</i> , an occasional cause of prolapsus -	153
—————, a cause of stricture - - - - -	2
<i>Cicatrices</i> , of ulcers in the bowels, peculiarities of -	104
<i>Coagulable lymph</i> , appearances of in the injected bowel - - - - -	89
—————, effused from inflammation - - - - -	2
—————, irritation - - - - -	88
<i>Cold water</i> , a useful application in spasm of the bowels - - - - -	20
<i>Colica pictonum</i> , an occasional cause of prolapsus -	153
<i>Colon</i> , fungous tumours in - - - - -	13
———, stricture in - - - - -	12
<i>Costiveness</i> , a common cause of prolapsus - - - - -	154
————— hæmorrhoidal tumours	207
—————, obstinate, from the irritation of an abscess	96

D.

<i>Diarrhœa</i> , a cause of prolapsus - - - - -	153
—————, an attendant on tumour in the bowel -	147
<i>Diet</i> , necessity for regulating, in ulcerated bowels -	107

E.

<i>Eruptions</i> repelled, a cause of stricture - - - - -	2
<i>Erysipelatous inflammation</i> , near the anus - - - - -	249
<i>Excrescence</i> , hæmorrhoidal, causes of - - - - -	264
<i>Extraneous bodies</i> in the rectum, effects of - - - - -	6

F.

<i>Fæces</i> , accumulation of, symptoms from - - - - -	23
——— lodged in the rectum, occasional effect of -	7

	Page
<i>Fatty substances</i> , lodged in the bowels, occasional effects of - - - - -	24
<i>Fistula</i> , a supposed cause of stricture - - - - -	2
———— in ano, appearances on dissection - - - - -	250
————, causes of - - - - -	247
————, medical treatment of - - - - -	255
————, occasionally a fatal disease - - - - -	247
————, operation for - - - - -	254
———— sometimes unsuccessful - - - - -	255
————, sometimes connected with diseased hip - - - - -	251
————, symptoms and appearances of - - - - -	248

G.

<i>Glans penis</i> , pain in, a symptom in stricture - - - - -	9
--	---

H.

<i>Hæmorrhage</i> , a symptom in tumour within the bowel - - - - -	146
————, capillary, not relieved by astringents - - - - -	111
————, changes induced in the system by - - - - -	209
————, from the bowels, treatment of - - - - -	109
<i>Hæmorrhoidal</i> bleeding, best mode of relieving - - - - -	215
———— excrescence, a disease of the cutis - - - - -	265
————, causes of - - - - -	264
————, mode of distinguishing - - - - -	266
————, symptoms and appearances of - - - - -	265
————, treatment of - - - - -	267
———— irritation, occasional severity of - - - - -	210
———— pins, mode of using - - - - -	164
———— tumours, causes of - - - - -	207
————, frequently attended with bleeding - - - - -	209
————, may contain many coagula of blood - - - - -	212
————, mode of operating for - - - - -	215
————, sanguineous and serous - - - - -	208
————, structure of - - - - -	211
————, symptoms and appearances of - - - - -	207
————, treatment of - - - - -	213
————, unfavourable situation of - - - - -	208
———— veins, varicose state of - - - - -	212
<i>Heat</i> , local, a symptom in inflamed rectum - - - - -	5

	Page
<i>Heavy weights</i> , lifting of, a cause of prolapsus -	154
<i>Hogs'-bristles</i> , stricture and ulceration from swallowing	13

I.

<i>Indigestible</i> substances, occasional effects from eating	100
<i>Inflammation</i> , consequences of - - -	5
———, importance of preventing - - -	19
——— the medical treatment of	16
——— may suspend the progress of labour -	5
———, occasional state of pulse in - -	91
——— of rectum, a cause of stricture -	1
———, operation of - - -	2
———, state of, when examined - -	8
———, the most common cause of ulcerated bowels - - - - -	90
<i>Inflammatory spasm</i> , treatment of - - -	19
<i>Intestines</i> , most irritable parts of - - -	100
———, small, scirrhus tumour in cavity of -	146
———, tumour within - - -	144
<i>Irritable bladder</i> , an occasional cause of prolapsus -	154
——— <i>bowels</i> , warm clothing to be regarded in -	111
——— <i>state of bowels</i> , importance of - -	87
<i>Irritation</i> , a cause of ulcerated bowels - -	86
——— of the bowels, a cause of hæmorrhoidal tumours - - - - -	207
<i>Intus-susception</i> of the bowels - - -	157
———, mode of its occurrence	158
——— rectum, habitual, effect of de- bility - - - - -	159
———, importance of knowing	159
———, may inflame -	159
———, may protrude exter- nally - - - - -	159
———, treatment of -	166

L.

<i>Labour</i> , pains of, an occasional cause of prolapsus -	154
<i>Ligature</i> , mode of applying, for hæmorrhoidal tu- mours - - - - -	215
——— operating by, for prolapsus -	164
<i>Lymph</i> , coagulable, excreted from the bowels -	88

M.

	Page
<i>Malæna</i> , symptoms and appearances in	100
———, treatment of	101
<i>Mechanical irritation</i> , an occasional cause of stricture	1
——— obstruction, may arise without stricture	10
<i>Medical treatment</i> of internal diseases, too much neglected	17

N.

<i>Nervous affection</i> , peculiar, from ulcerated bowels	95
——— <i>system</i> , peculiar affection of, from stricture	8

O.

<i>Œsophagus</i> , stricture of, from swallowing a fish bone	25
<i>Operation</i> for prolapsus, must be adapted to the case	164
<i>Opium</i> , highly useful in relief of irritable bowels	111
———, importantly useful in certain cases	165

P.

<i>Painter's colic</i> , an occasional cause of prolapsus	153
<i>Peritoneal inflammation</i> , may attend ulceration	107
———, may leave adhesions	93
———, rapid progress of	92
<i>Phlegmonous inflammation</i> , near the anus	248
<i>Pins</i> , hæmorrhoidal, mode of using	164
<i>Plum-stones</i> , extraordinary symptoms produced by	21
———, ill consequences from swallowing	21
<i>Prolapsus ani</i> , causes of	153
———, change in texture of parts from	156
———, consequences from inflammation in	157
———, mode of distinguishing from intus-susception	160
———, medical treatment of	164
———, mode of reducing	161
———, operation of returning, sometimes difficult	162
———, principle of the operation for the cure of	163
———, risk from its continuance	157
———, symptoms and appearances of	155

	Page
<i>Prolapsus ani</i> , treatment of - - -	161
———, varicose veins upon, may slough out -	157
<i>Purgatives</i> , drastic, a frequent cause of prolapsus -	153

R.

<i>Rectum</i> , excessive laxity of its internal surface -	156
———, great discharge from, without ulceration -	156
———, <i>irritable</i> , treatment of - - -	253
———, relaxed and enlarged, in prolapsus -	155
———, spasm of, overcome by the elastic catheter -	102
———, ulcerated, effect of astringent lotions upon -	108
———, leading principle in the treatment of - - -	108
<i>Remote consequences</i> of inflamed rectum - -	7
<i>Retention of urine</i> , from abscess, mode of relieving -	253

S.

<i>Septa</i> , membranous, in the rectum - -	8
<i>Spasm</i> , obstinate, of bowels, treatment of - -	19
———, of the sphincter ani muscle - -	4
———, modes of relieving -	214
———, occasional extreme severity of -	210
———, treatment of - -	31
<i>Spasmodic contraction</i> of the sphincter, occasional effect of - - -	210
<i>Spermaceti</i> , lodged in the bowels, symptoms from -	24
<i>Stricture</i> in the colon, - - -	12
——— rectum, best mode of examining -	4
———, causes of - -	1
———, division of - -	30
———, may become relaxed -	27
———, symptoms of - -	8
———, abscess frequently induced by - -	11
———, early treatment of, importance of - -	16
———, latter stages of - - -	10
———, scirrhus, appearances of, upon dissection -	14
———, distinctive signs of - -	12
———, spasmodic, treatment of - -	15
———, ulceration of - - -	10
<i>Superficial ulcers</i> , in the bowels, may do well -	95
<i>Suppositories</i> , useful applications in stricture -	31
<i>Sympathetic irritation</i> , occasional effects of in stricture -	9

T.

	Page
<i>Tenesmus</i> , a symptom of inflamed rectum -	5
-----, attendant upon tumours within the bowel	146
<i>Tobacco fume</i> , a remedy in intus-susception - -	167
-----, powerful influence of, in removing spasm - - - - -	19
-----, use of, requires caution - -	168
<i>Tumours in the bowel</i> , causes of - - -	144
-----, occasionally treated by pres- sure - - - - -	149
-----, removal of, by ligature -	150
-----, symptoms and appearances of	145
-----, treatment of - - -	149
----- within the stomach - - -	148

U.

<i>Ulcerated bowels</i> , aperients most suitable in -	105
-----, appearances observed in -	102
-----, when in- jected - - - - -	103
-----, treatment of - - -	104
<i>Ulceration in the rectum</i> , generally highly irritable -	96
----- <i>bowels</i> , causes of - -	86
-----, circumscribed or diffused -	92
-----, consequences of - -	92
-----, extensive, necessary effect of	95
-----, nervous affections, incident to	95
-----, state of habit, favouring -	6
-----, superficial, may end well -	95
-----, symptoms of - -	91
<i>Ultimate consequences</i> of stricture in the rectum -	28

V.

<i>Valvular stricture</i> in the rectum, mode of its pro- duction - - - - -	7
<i>Venereal disease</i> , a supposed cause of stricture -	2

W.

<i>Warm water</i> to be injected in intus-susception -	166
--	-----

	Page
<i>Watchfulness</i> , an occasional effect of irritation in stricture - - - - -	9
<i>Womb</i> diseased, an occasional cause of stricture -	3
<i>Worms</i> , irritation from, an occasional cause of pro-lapsus - - - - -	153

THE END.



PLATE I.

Fig. 2.

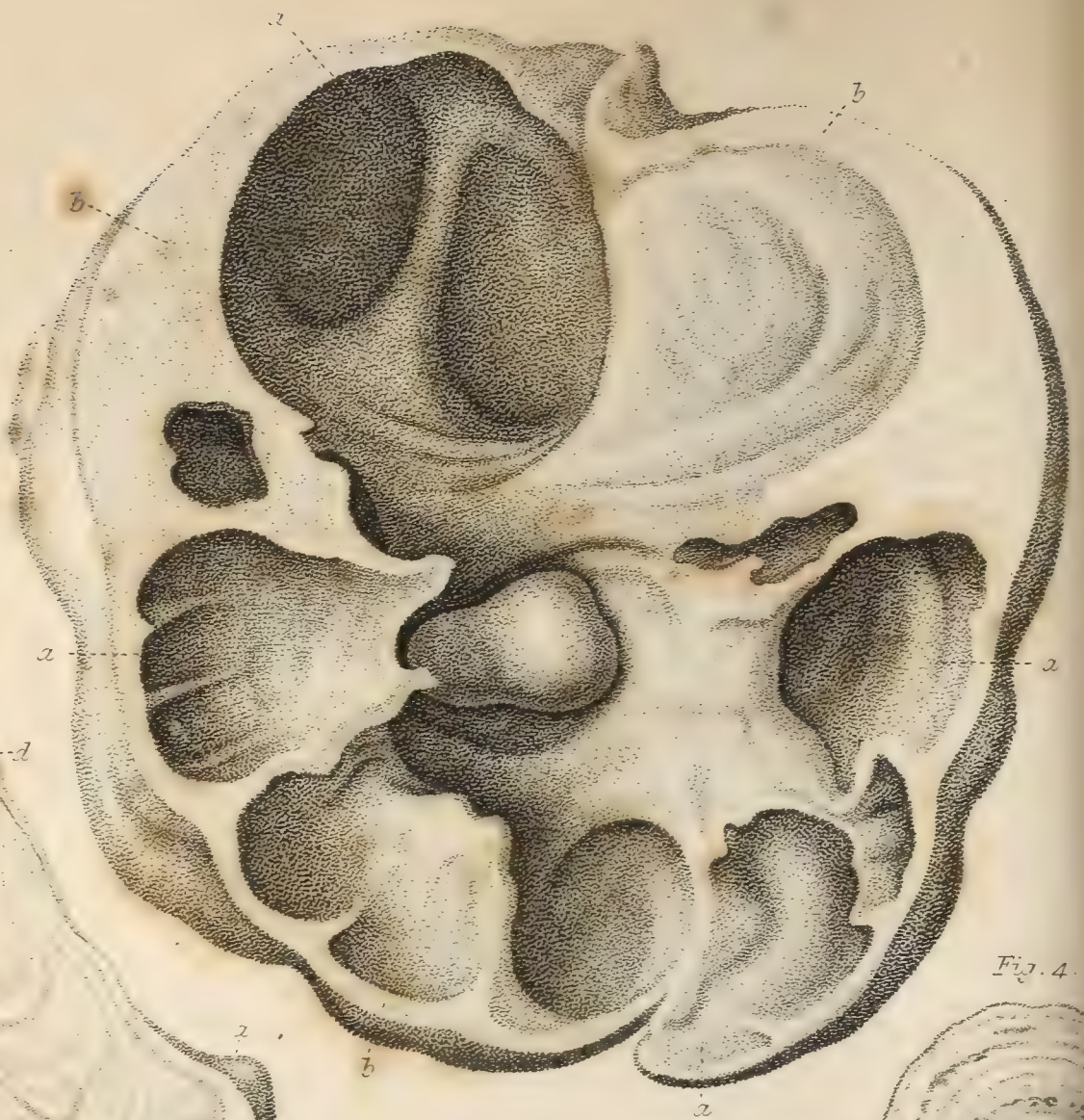


Fig. 1.



Fig. 4.



Fig. 3.



J. Howship del.

A
PRACTICAL TREATISE
ON THE
SYMPTOMS, CAUSES, DISCRIMINATION, AND TREATMENT
OF SOME OF
Dr. J. W.
THE MOST IMPORTANT COMPLAINTS
THAT AFFECT THE
SECRETION AND EXCRETION
OF
THE URINE.

THE FIRST HEAD, INCLUDING

Suppression; from Congestion, Inflammation, Calculi, Abscess, or other Diseases in the Kidneys; the Appearance of Blood, Pus, Albuminous Matter, or Gravel, in the Urine; and the various Kinds and Seats of Urinary Calculi.

THE SECOND, SPECIFYING

The Circumstances inducing Retention; in the Kidneys, Ureters, Bladder or Urethra; as Old Age, Paralysis, Gouty Spasm, Strangulated Rupture, Tumors in the Bladder, Hernia Vesicæ, Displacement or Pressure of other Viscera, Ruptured Bladder, Inflammation of Urethra, Gonorrhœa, Contusion, Tumors, Enlarged Prostate, Spasmodic, and Permanent Stricture: with Remarks on Puncture of the Bladder.

THE WHOLE EXHIBITING

A COMPREHENSIVE VIEW OF THE VARIOUS DISEASES
OF
THE KIDNEYS, BLADDER, PROSTATE GLAND, AND
URETHRA.

Illustrated by numerous Cases, and Engravings.

By JOHN HOWSHIP,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON;
SOCIÉTÉ MÉDICALE D'ÉMULATION, OF PARIS; ROYAL MEDICAL SOCIETY OF
EDINBURGH; AND MEDICO-CHIRURGICAL SOCIETY IN LONDON;

AUTHOR OF

PRACTICAL OBSERVATIONS IN SURGERY AND MORBID ANATOMY,
OF PRACTICAL OBSERVATIONS UPON THE DISEASES OF THE LOWER INTESTINES,
&c. &c. &c.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, AND BROWN,
PATERNOSTER-ROW.

1823.

TO

JOHN HEAVISIDE, Esq.

F. R. S. F. A. S. &c. &c.

MY DEAR SIR,

UPON a former occasion I took the liberty of laying before you an Essay, the First Fruits of my professional experience; I hope and trust the work I now have the honor to present, not weighed in the balance of desert, but considered as a testimonial of respect, may be so fortunate as to obtain your acceptance and good opinion.

If the steady extension of the same line of unalterable friendship through every changing scene of life constitutes one of the strongest claims upon gratitude, and one of the

highest attributes of our nature; then does your still continuing kindness and regard which has now followed me through a long series of revolving seasons, call for such acknowledgements on my part as words would but ill express, and I am afraid deeds never can.

Believe me to remain,

Dear Sir,

Your sincere Friend, and

Faithful Servant,

JOHN HOWSHIP.

*George Street, Hanover Square,
March 8. 1823.*

INTRODUCTION.

IT is the object of the following work to bring into as clear and comprehensive a form as possible, the most interesting results of my own experience, occasionally aided by that of others, on the particular subject upon which it proposes to treat.

The disorders and diseases that regard the secretion and excretion of the urine, form an extensive line, or rather I had almost said a complete circle, of pathological research; the various parts of which, as regards the whole, it has been my anxious desire to place in that point of view best calculated to give a clear, and at the same time a correct, impression.

The diseases that relate to the system of the urinary organs were formerly too much neglected. Feelings of false delicacy in some instances prevented their being made the subject of complaint in their commencement, and not unfrequently operated as a motive to concealment through their progress; and if the means of studying these diseases at the bedside have been scantily supplied, those facilities by which the state of the parts might have been determined by examination after death, have also been either unobtained or unregarded. So little, in fact, have these complaints, till of late, been understood, that when in rare instances the morbid anatomy has been ascertained, the conjectures as to the causes of the diseased appearances have been scarcely consistent either with reason or probability.

The late Mr. HUNTER furnished one of the brightest examples ever known of what may sometimes be accomplished in the short span of a single life, by the union of unparalleled industry, a strong genius, and an ardent love of his profession. His observations upon the diseases of the bladder and urethra may be considered as the principal foundation on which our knowledge of these complaints at present stands.

The practical observations of Sir E. HOME upon the treatment of stricture in the urethra, is also an excellent work ; including the consideration of the remote as well as immediate circumstances connected with stricture. To the same author the professional world is indebted for observations upon the diseases of the prostate gland ; diseases never before treated in this country with so much perspicuity.

The practical work, however, of M. DESAULT, “ *Sur les Maladies des Voies Urinaires*,” appears to me in some respects superior to any that I have seen, especially in what relates to the mode of dividing and arranging the subject ; upon which account the present work is constructed in most respects on a similar plan.

To explain my reasons for having passed over certain divisions included in the arrangement of M. DESAULT, would be tedious and uninteresting ; suffice it to say, I have freely followed wherever my judgment approved, and as freely dissented where doubt or difference of opinion suggested the propriety of my so doing. I trust, however, that this dissent has upon every occasion been expressed in terms consistent with the respect due to the memory of those whom superior talent has raised into high and deserved celebrity.

The observations adduced, and the practical rules grounded upon them, have been derived almost exclusively from my own experience in these diseases, although where I have found apposite remarks, or interesting facts, in the course of my reading, or through the kind attention of friends, I have not hesitated to avail myself of them.

In the development of morbid structure, care has been taken to specify what I have myself examined, and what has been advanced upon the authority of others. A care particularly necessary in circumstances that regard the leading principles of pathology, where error is so apt to creep in, and where loose conjecture, through the medium of generally received opinion, has sometimes assumed all the importance of truth.

For many of the pathological illustrations I am indebted to the kindness of Mr. HEAVISIDE, from the valuable contents of whose extensive Museum it will be seen I have derived much information. Neither have I been under less obligation to the friendship of Dr. HOOPER, from whose spirit of liberality any labours that have improvement for their object, are sure to derive not only approbation but support. Many curious illustrations of disease have been drawn from the splendid collection in the Museum of the Royal College of Surgeons. Some fine specimens of disease in the urethra I also found in visiting the Military Collection at Chatham; a collection which upon many accounts does honour to its founder, the present Director-general. That active spirit of research, and patronage of improvement in pathological science, the want of which so long retarded the advancement of military surgery, has at length manifested itself; and by inculcating the judicious

and important precept that individual effort may in almost every case be rendered conducive to general benefit, promises to operate most favourably upon the medical officers of the army; by exciting a laudable emulation, that formerly could scarcely be said to have had an object, but which in the present day will be looked up to and properly regarded, as constituting the strongest claim to distinction and honour.

With relation especially to the pathology of the kidney, I have met with some most interesting preparations in the Museum of Mr. BROOKES, surgeon and teacher of anatomy; a collection that could only have been made by one whose personal industry, and professional zeal, know no intermission.

The particular histories of disease or cases, may at the first glance perhaps, appear not sufficiently select; the reading them through with the attention necessary to render them useful, may be considered tedious. I have however, very long been convinced that the variety in the association of symptoms is almost infinite, the least change in the position of any one altering in some degree the aspect of all the rest; and that the honest student of surgery can never become the successful candidate for fame and fortune, without consenting to devote much time and patience, more labour and care, and occasionally the sacrifice of almost every comfort, to the acquirement of knowledge in his profession. These opinions must plead, as I trust they will plead, my apology; and indeed the weight of these points in regard to symptoms, cannot be better expressed than they have been in reference to words, by the great Dr. JOHNSON; who, in the Preface to his incomparable Dictionary,

observes, "That those quotations, which to careless or unskilful perusers appear only to repeat the same sense, will often exhibit, to a more accurate examiner, diversities of signification, or at least afford different shades of the same meaning: an ambiguous sentence is ascertained by a passage clear and determinate, and the word how often soever repeated, appears with new associates, and in different combinations."

For those minor defects, which most probably have escaped notice, I beg leave to hope I shall stand excused; in consideration of circumstances, which as they are common to every professional life, it would be affectation to specify. The great object of all attempts of this kind is or ought to be of a serious nature, the earnest and laudable purpose of lightening the burthen of those afflictions which suffering human nature is but too often called upon to support. Consistent with this feeling, my single anxiety has been the practical and therefore useful illustration of my subject; and I shall feel most amply rewarded, should I find my labours in this particular held conducive, in any degree, to the advancement and improvement of our most useful profession.

J. Lane.

ERRATA.

- Page 57. line 1. for *fungous*, read *fungus*.
- 59. line 9. for (270.) read (370.)
- 68. line 7. for *more*, read *most*.
- 214. line 27. for (111.) read (211.)
- 302. foot-note, for PLATE II. *Fig. 3.* read PLATE II. *Fig. 4.*

A

PRACTICAL TREATISE,

&c.

PART I.

ON THE DISEASES THAT AFFECT THE SECRETION OF
URINE.

CHAP. I.

ON SUPPRESSION OF URINE.

1. **T**HE functions of the kidneys in secreting urine, carried on with constancy and freedom during health, under some diseases are liable to embarrassment, from obstruction to the flow of the secreted fluid; under others, occasionally subject to suspension; the first of these states giving rise to retention, the second to suppression, or non-secretion of urine.

2. In suppression, there is usually no sensation of desire to void urine; in retention, this desire is frequent and distressing. In suppression, there is commonly much pain in the loins, but none in the region of the bladder; in retention, the greatest complaint of distress arises from the pain in the bladder. In the first case, there is no tumour of the bladder; in the second, the swelling is not only very painful, but always manifest to the hand, and frequently to the eye. Lastly, the introduction of the catheter, in the one case, proves the bladder empty; in the other, by allowing the urine to flow off, it relieves the complaint.

3. The urine may, however, be prevented reaching the bladder, without any suspension of action in the kidneys; this may happen from any cause impeding, or obstructing, the flow of water into, or through, the ureters. In these cases, the attendant symptoms must be more particularly considered, in ascertaining the seat, and determining the cause, of the affection.

4. Suppression of urine may be complete, or incomplete. The first case is very rare; the second comparatively frequent. An affection that either deranges or destroys the functions of one kidney, may leave the other to the more vigorous performance of its duty; a circumstance most happily calculated to guard the constitution from the ill effects of a disease, the complete establishment of which is almost invariably fatal. (62.) HALLER says, “BOERHAAVIUS perswasus est, ex multis observationibus, suppressionem perfectam urinæ mortiferam esse.” *

5. Local congestion, inflammation, calculi, and abscess, may perhaps be considered the most clearly ascertained, and most frequent occasional causes of suppression of urine; although the precise mode, even of their operation, appears to be almost entirely unknown.

6. In some instances, the neglecting to empty the bladder has brought on suppression of urine. An example of this is mentioned by BOERHAAVE, in a gentleman who, from close attention to business, neglecting to pass his water, at length lost the power, and it was therefore drawn off by the catheter. On the third day after, the catheter being passed as usual, the bladder was found empty. On the fourteenth day he died. The symptoms on the sixth day, were inaptitude for conversation, sleepiness overpowering but unrestful, offensive breath

* Prælectiones Academicæ, edit. ALB. HALLER.

and perspiration ; quickened pulse, convulsion, lethargy, and death. He adds, “ *In cerebri ventriculis reperta est urina.*” * The secretion of urine, in one case, mentioned by Dr. HENRY, was for two days entirely suspended, by an excessive dose of foxglove. †

7. Suppression of urine is generally attended with feverish symptoms, thirst, and a urinous taste in the mouth. Frequent vomiting also is a characteristic symptom, where the complaint continues ; the fluid rejected having a peculiar urinous odour. DESAULT observes, “ *Il est vrai que la nature prévient quelquefois les accidens ou retarde leur naissance, en se débarrassant en partie des urines par d'autres émonctoires, tel que la peau, les oreilles, les narines, la bouche, les mamelles, l'anús, &c.;*” and as regards particular instances, there is every reason to believe his statement correct. Such, indeed, is the diversity of appearances in this disease, that Dr. ABERCROMBIE, in a valuable paper upon this subject, remarks that the only constant circumstance is the suspension of secretion.

8. Mention is made by Dr. JOHNSTONE, of a very curious fact, in a case of suppression, in which, “ for some days before death, the skin was all over as white as if it had been powdered. This white dust being gathered, it was found to have the taste of crude sal ammoniac.” The mode in which this was explained, was “ the secretion of urine prevented, the perspirable matter became so supersaturated with ammoniacal salt, that it crystallized upon the skin.” ‡ But the most singular instance upon record, perhaps, is related by Dr. DAWSON, of a woman, in St. George's Hospital. Her complaints were various and severe, and with other

* *Prælec. Academicæ.*

† *Edinb. Med. Journal.* vol. vii.

‡ *Lond. Med. Commentaries,* vol. v.

symptoms, after several temporary attacks, came on a permanent suspension of all action in the kidneys, and she is stated to have had a total suppression of urine for above fifteen months. During this period, she frequently vomited every day, sometimes every two or three days. If the vomiting came on after eating, what was rejected seemed to be mere urine, without any mixture of what had been taken. By occasional purges and other means, œdematous swellings of the limbs were kept under. Her breasts became ailing, and discharged a watery fluid, which, like the other discharges, had a urinous smell. At length uncommon pricking pains were felt all down the back and loins, and about the belly and groin, with great heat. On the second day she voided three ounces of thick slimy matter, with sharp pains in the urinary passages; this water was not high coloured. The next day she passed healthy urine. Afterward she often had a suppression of urine ten or fourteen days, and once for two months, during which she had no vomitings; but her body was very much swelled.* In such complaints as these, treatment cannot with propriety be directed upon any one general principle; it must be regulated by the circumstances of the case, and will frequently require to be adjusted by its varying phenomena. In the following sections, however, some suggestions upon this head will be laid down. It is occasionally not only difficult, but impossible to determine positively, whether this disease exists or not. (Case 9.)

SECT. I.

Suppression, from Congestion in the Blood-vessels of the Kidneys.

9. THE quantity of urine secreted, is subject to great variation, from the influence of temporary

* Philos. Transact. vol. li.

circumstances ; profuse sweating, excessive salivation, obstinate diarrhœa, dropsy ; M. DESAULT says, “ l'épaississement du sang,” is an occasional cause.

10. Congestion, or local plethora, in the circulating system of the kidneys, I should suppose, sometimes to operate as a cause of suppression ; from external injury to the loins, bruising the structure, and enfeebling the functions, of these glands. The first consequence of injury to the kidneys may be voiding blood with the urine ; indeed, hæmorrhage may thus occasionally form the leading character of the complaint. (Case 11.)

11. Suppression of urine has in particular instances been presumed to arise from obstruction to the flow of fluid from the secreting tubes, either by inspissated mucus, pus, or worms. The agency of such causes as these, however, is matter of speculation only ; and even could their existence be known, there appears but little chance of deriving any practical advantage from the information ; for my own part, I have, in some instances, found the natural structure of the kidney so completely altered, and in fact destroyed, by long-continued pressure, as to suggest a doubt whether suppression ever arises from this cause. (546.)

12. In the treatment of this complaint, the state of constitution on the one hand, and the position and circumstances of the case on the other, must be our direction. Bleeding, either general or local, will be commonly required, unless the pulse and strength are deficient. In the plethoric habit, the volume of the circulating blood may be considerably lessened, with advantage, by opening a vein in the arm. Should, however, the propriety of the measure be at all doubtful, the complaint may, perhaps, be relieved by the application of leeches, or cupping-glasses : of these means, the former is the most quiet in its operation, the latter the quickest and best, where decision is necessary.

13. Frequently the symptoms originating in congestion, will run more or less distinctly into those of inflammatory action. Under these circumstances, the treatment must be directed according to the rules laid down in the next section.

14. The bowels will, in every case, require attention; active purgatives, however, have been sometimes held objectionable; although they appear rarely to do harm. Occasional emetics, also, are recommended, especially by french writers; but, perhaps, it is only in a few cases that they answer. I have been more than once called to attacks of this description, in which the low state of the pulse, and still lower condition of the physical powers, required, from the first, every attention to the improvement of the digestive organs, aided by nutritious diet, with a view to restore a broken constitution; and this partially accomplished, the appearance of blood in the urine has ceased, while the quantity of the natural secretion has increased, until it has, at length, returned to its healthy state, both as to quality and quantity.

CASE 1.

Partial Suppression of Urine, from Contusion of the Kidneys.

A MAN, 43 years of age, walking home on the evening of *February 11. 1820*, was pushed down among some timber, his left loins coming into violent contact with the sharp edge of the log. In considerable pain, he came home, and went to bed. In four hours he passed urine, but in small quantity, mixed with blood, small coagula subsiding to the bottom. I visited him the next day, and as he complained of a very scanty secretion of urine, tenderness and pain in the kidney, a sense of numbness down the thigh, with confined bowels; he was ordered an aperient, to be frequently repeated.

February 13. Bowels relieved, pain not removed,

but sense of numbness increased. Pulse 90, not hard. Urine still small in quantity, and tinged with blood. Six leeches applied to the seat of the injury, and the aperient continued.

February 14. Pulse natural; tongue furred; urine gradually becoming clear and healthy: he now complained of desire to pass it every three or four hours, when only a table-spoonful was collected.

February 15. Ordered the warm-bath; greatly to the relief of the feverish symptoms, and local pains.

February 17. Thirst still considerable; tongue foul; pulse 90; bowels sufficiently open; some tenderness on pressure, in the seat of the kidney, and in the direction of the colon. A mixture was ordered, with saturated lemon-juice, camphor mixture, and compound sulphuric æther, every four hours.

February 18. Much better in every respect; tongue much cleaner, and moist at the sides; urine improved in quantity. He was directed the warm-bath for the fourth time; and desired to take an aperient medicine, in the intervals of his saline mixture.

March 8. Almost recovered, and able to be about again; but still in occasional pains in the side, with numbness down the thigh and leg, so that he feared eventual lameness. I desired him to keep his bowels carefully relaxed, and to apply a blister, to be kept open, upon the loins.

March 15. The blister had greatly relieved the pain, but had not diminished the numbness about the limb. The free and healthy secretion of urine appeared now to be perfectly restored.

April 8. The blister still discharging, all internal symptoms relieved, the pain and numbness entirely removed, leaving only an occasional sense of weakness. I advised his keeping the blister open another week, and then allowing it to heal.

May 2. He called, and said the pain in the loins, the numbness, and lameness in the thigh had returned. I advised another blister, to be kept open, on the seat of the pain.

May 23. The blister kept open three weeks, and then allowed to heal. He said he was thinking of leaving London, as the complaint was entirely removed; but he wished to know how to act if it returned again. I said, apply another blister, to be treated as before.

June 20. 1821. The bruised part again painful, with a sense of dull, heavy uneasiness, which he thought might have been consequent to his late close confinement to his employment, as a taylor. I therefore recommended another blister, to be kept open.

August 28. I accidentally met this man. He told me the last blister, kept open three weeks, had removed all pain and uneasiness; that when sitting close to work, he had felt a sense of fulness, and occasional shooting in the side, a dull, numbing pain down the thigh, and perceptible uneasiness, and even enlargement of the testicle on that side; but that when on foot, and in exercise, all this went off again, and he felt perfectly well.

SECT. II.

Suppression, from Inflammation of the Kidneys.

15. THE causes of suppression from inflammation of the kidneys, will be those of inflammation in general. Violent impressions from cold falling upon these parts; acrid and irritating medicines taken internally, cantharides, turpentine, &c.; irritation from calculi, in the bladder, ureters, or cavities of the kidneys, (Cases 3. and 4.); irritation from gouty matter disturbing the functions of these glands. Any of these causes may either first excite inflammation, and suppression, as its consequence, or without producing distinct inflam-

matory symptoms, may at once suspend the secretion of urine. Gouty action flying about in the constitution, is not a very unfrequent cause of partial suppression. A case of complete suppression from gout, terminated happily under Mr. HEAVISIDE's care; and was the only instance of recovery from complete suppression, he had ever seen. A general officer, walking home on a cold night, from the House of Commons, in full dress, with gout in his foot, the complaint left his toe, and the next day, Thursday, with great pain in the loins, he made little water, on Friday less, and on Saturday none. On *Sunday*, with Sir FRANCIS MILMAN, Mr. HEAVISIDE visited him: he felt the abdomen, but found no tumor; requested to draw off the urine; he passed a catheter, and found, as he expected, the bladder empty. Terebinthinate medicines were directed, and, on taking the third dose, the patient felt desire, and passed nearly a pint of water. Sent afterward down to drink the waters at Bath; he there had a regular fit of the gout, and perfectly recovered.

16. Within the last twelvemonth, I have had a painful opportunity of witnessing, with Dr. HOOPER, the effect of gout, moving from one part of the constitution to another. The joints of the extremities, and viscera of the body, were successively subjected to its influence; when the complaint left the lower limbs, constant uneasiness, and occasional sharp pains came on in the loins, with nausea and retching; the quantity of urine secreted, sinking at once down to one-eighth of its former quantity. For several days that these symptoms continued, the water passed scarcely amounted to a tea-cupful a day; but on the disorder again shifting its seat, these consequences ceased, and urine flowed again, two or three pints daily. I have seen several nearly similar instances. An interesting case of suppression has been published by Dr. LAING, of Fochabars, in which there seemed to be inflammatory

affection of the kidneys, from pain in the back, feverish symptoms, and sily blood, during the attack. The functions of the kidneys were entirely suspended for nine or ten days, without any material injury to the rest of the system; the only evident outlet, for that period, being the bowels, from which, by the aid of purgatives, copious watery stools were brought away. *

17. Nearly all the complaints to which the kidneys are subject, may be connected more or less distinctly with inflammatory action; and as the treatment required in inflammation must be taken into account in the management of every such affection, particular attention should always be paid to the symptoms indicating its presence.

18. A writer, who may be truly said to have studied from nature, observes, “*La douleur, dans tous ces cas, est ordinairement aigue intermittente; on continue avec plus ou moins de rémission: on la rapporte aux lombes, et quelquefois à l’estomac; elle s’étend jusqu’à l’aîne, à la racine de la verge, & quelquefois aux testicules, qui en souffrent une rétraction: quelques-uns ont encore des engourdissemens à la cuisse. Les urines s’arrêtent, ou coulent en très petite quantité; on les rend souvent avec douleur: elles sont limpides pendant le paroxisme; mais elles deviennent à la fin bourbeuses et glaireuses, ou graveleuses. On a, pendant l’attaque, des nausées, le vomissement et le ventre resserré; sa durée est de quelques heures, d’un ou plusieurs jours; la fièvre l’accompagne le plus souvent; sa fin est annoncée par l’écoulement des urines, ou la sortie de quelque pierre.*” † The deficient secretion of urine, being as distinctly pointed out by another eminent french writer, who says, “*L’inflammation des reins est presque toujours accompagnée de la suppression des urines ‡;*” and, being certainly an attendant symptom in inflammation of

* Edinburgh Med. Journal. vol. x.

† LIEUTAND. Précis de la Méd. tom. ii.

‡ DESAULT.

the kidneys, it is singular that such excellent pathologists as Dr. CULLEN *, and Professor HOME †, should neither of them have noticed it.

19. The appearances, on examination after death, if notable, will be rarely confined to increased vascularity; more frequently presenting some stage or consequence of suppuration; these will be noticed in treating of the appearances from calculi lodged in the kidneys. (171.)

20. The treatment of inflammation of the kidneys, proceeds upon the same general principles that regulate the cure of other inflammatory affections; bleeding, warm-bath, mild purgatives, emollient clysters, and a free use of mild demulcent liquids.

21. The application of blisters, excellent in most local inflammations, are said, in the present case, to be hazardous, from the possibility of absorption; I have, however, frequently directed them, and, almost invariably, with advantage. (Case 1.)

22. The favourable progress and decline of the inflammation will be determined by the abatement of symptoms; the local pain and heat gradually diminishing, the pulse becoming softer, the tongue clearer, the skin cooler and more relaxed, the urine more abundant, and from clear, pale, or red, becoming thick, and depositing a copious sediment. The patient, under these circumstances, will also breathe more freely, and turn in bed with more comfort than before.

23. But, notwithstanding that, in certain states of constitution, the lancet must be considered our principal dependence, the treatment will frequently require to be modified, according to circumstances. Provided the patient has youth and strength on his side, and the symptoms are urgent, large and

* First Lines of the Practice of Physic.

† Principia Medicinæ.

repeated bleedings from the arm, and immersion in the warm-bath, as often as may appear expedient, are very proper, as well as very powerful, remedies ; but where the patient is not young, and the constitutional powers are in a state that admits of their being much more readily taken down than set up again, common prudence, with a very limited share of observation, may suggest the necessity for caution. Every symptom should be considered with attention, and every means of treatment, that can operate by diminishing strength, should be so directed, that it may, as nearly as possible, do what is wanted, without doing more.

24. Upon this principle, the application of leeches, or cupping-glasses, will often supersede the use of the lancet ; the hip-bath, or fomentations only, will be occasionally preferable to the complete immersion of the body ; and the more direct means of abating arterial action will be powerfully assisted by the judicious administration of opiates, particularly where there may be reason to suspect calculous irritation in the kidney.

25. There are some cases of inflammatory affection of these glands, the management of which will require almost infinite caution ; in these instances the attack usually comes on without any sufficiently obvious exciting cause.

26. It sometimes happens, that towards the turn of life, there is an attempt made to produce a new disease in the constitution, or, at least, one new to the patient, who has never experienced it before. When this occurs, should the constitutional tone be materially deficient, or should the treatment of the apparent symptoms be carelessly conducted, the chances are extremely unfavourable, from the probability of the disease settling itself upon some vital organ ; an event which generally terminates fatally. In this way I have seen several instances of gout making its appearance. In one, the great toe first

became tender, and somewhat inflamed, but this, in a day or two, went off, upon the sudden accession of paralysis from affection of brain, from which, notwithstanding every thing possible was done for his relief, the patient never recovered, although he continued to live some few years in a wretched and helpless state. Another instance of this kind, where the kidneys were principally concerned, is the following.

CASE 2.

Partial Suppression, with Inflammation of the Kidney, from Gout.

August 12. 1815. I visited a gentleman, aged 40, suddenly attacked at midnight with violent pain in the right kidney, shooting down in the course of the ureter; with nausea, vomiting, and desire to pass water. A sense of numbness in the fore-part of the thigh, and tenderness in the testicle, on that side. Pulse 100, small, but hard; tongue scarcely white; thirst considerable; urine high-coloured, turbid, and small in quantity.

To render the case clear, a silver catheter was passed into the bladder, and about an ounce of urine drawn off. A saline draught, with tincture of opium, was then directed every four hours; and some leeches to the loins, which were subsequently fomented.

Under this plan his health improved; and in a few days he walked with comfort about his chamber, and could take light food.

Without obvious cause, sickness and vomiting now returned, with a rejection of thin watery fluid; with tenderness, pain, redness, and swelling, at the ball of the great toe. I directly suspected the whole of the attack had been gout. On enquiry, this disease was known in the family; but, as my patient had never felt it before, he would hardly believe it to be so. I was, however, so clear

of the fact, that he was immediately directed to take a few glasses of wine daily, with a more generous diet. A light tonic was prescribed, and the former draught still continued every evening. It agreed well; and, as the medicine had probably assisted in bringing the constitutional disease round to its right point, it could not, perhaps, have been changed for a better.

When the toe inflamed, all remaining uneasiness left the loins, and the health and strength improved. The inflammation proved transient, the pain extending along the sole of the foot, with œdema.

In a week, the toe was nearly well; the complaint soon went off altogether, leaving the patient in better health than for many months before.

August 3. 1816. This gentleman passed a small uric acid calculus, by the urethra; but was well in health, except that he sometimes voided a red-coloured sand, with his water. He took medicines, and was relieved.

May 12. 1817. He called on me, having just had a smart attack of heat and pain in his toe; it was preceded by dyspepsia, continued a few days, and then left him in improved health.

April 1. 1819. Still subject to red gravel, and sometimes to irritation, as if from calculus; and, upon exercise, bloody urine. For these symptoms he took the alkalies, particularly soda, with great benefit.

SECT. III.

Suppression, from Calculi in the Kidneys.

27. THE mode in which calculi in the kidneys operate in producing suppression, is as little understood as that of any of the other causes of suspended secretion of urine; although there is no doubt of the fact. These bodies, however, are known to excite other consequences of irritation, disturbing and impeding the functions of the glan-

dular structure ; it may, therefore, be supposed, that as calculi produce their other ill effects through the medium of irritation, they operate on a similar principle in inducing suppression of urine.

28. Generally speaking, the degree of irritation from calculi in the urinary passages, productive of suppression, will be such as has already brought on other ill consequences in the seat of the disease ; either high vascularity of the membrane lining the cavities of the kidney, ulceration of its internal surface, or some further injury. A woman labouring under these complaints, died with violent pain in the left side. For five or six weeks she had complained of pain in making water, and constantly discharged, with little urine, a large quantity of matter. Her complaints altogether had lasted seven or eight months. A great quantity of purulent matter was found among the intestines, in the left side of the abdomen ; none in the right. The left kidney was almost entirely destroyed by long-continued irritation, and consequent ulceration. Only a part of the pelvis remained, which was thickened, scirrhus, and contained two stones ; one thick, and with processes extending into the infundibula ; the other, a small calculus. The lower ribs, on which the kidney had laid, were carious. The bladder was healthy, but full of pus.* The morbid appearances, however, that arise from calculi, will be more particularly enumerated in treating upon calculi in the kidneys.

29. A careful attention to the course and succession of symptoms, in diseases, will frequently explain circumstances, not otherwise to be understood. It is well known, that those who die from suppression, or even retention of urine, become comatose ; but upon what principle this happens, is not at first perfectly evident. By attending to cases of this sort it will appear, that, at a certain period,

* From a MS. of Mr. WATSON's, in Mr. HEAVISIDE's Museum.

and not before, the affection of kidney excites an increased degree of sympathetic disturbance of stomach, nausea, and vomiting; and efforts to vomit, from whatever cause excited, are among the most frequent sources of mischief, within the head. In the present case, the consequence is generally serous effusion alone, which, I believe, arises from the state of constitution necessarily connected with calculous complaints, being that which long subjected to irritation, is more prone to serous than sanguineous effusion, and consequently the same accidents which in strong health would rupture a blood-vessel in the brain, will in these complaints induce serous effusion (40.); most commonly confined to the membranes of the brain, but now and then taking place elsewhere, giving rise to ascites, &c. An interesting example of this latter kind is published by Mr. LANGSTAFF, in which, after death, the diseased kidney, exceedingly enlarged, was removed and injected. It was then found beautifully vascular, and when cut into, more than a pint of pus flowed out, leaving a large cavity excessively vascular internally, in most parts thinly coated with lymph, but in no point more than one-fourth of an inch thick; resembling the cyst of a chronic abscess. A large calculus occupied the pelvis of the kidney; filling up the opening of the ureter, which was highly inflamed. *

30. In the treatment of this kind of suppression, when the attack has been preceded or attended by much pain in the loins, and those sympathetic affections denoting increased action, the depleting system must be adopted, with such qualification as the symptoms may suggest. These may be succeeded by either the milder diuretics, antispasmodics, or opiates. When very little or, perhaps, no local pain is experienced in or about the loins, there

* Med. Chir. Trans. vol. xi.

may be no objection to trying the more powerful terebinthinate remedies, taking care at the same time to watch their effect attentively, which may enable us at least to prevent any ill consequences from the experiment.

31. In the enumeration of symptoms common to suppression, (2.), it was observed to be usually unattended with desire to void urine, and unconnected with tumour in the seat of the bladder. Professor DELPECH very truly observes, that there are cases in which, from one symptom being absent, and another indistinct and obscure, the treatment will require particular care. Thus, retention of urine may be connected with rigid spasm of the abdominal muscles, so as to conceal the tumor of the bladder; and, on the other hand, hysterical affections, with suspended secretion of urine, and at the same time the most incessant and urgent calls to pass water, may be also attended with similar spasm of the muscles of the lower belly; and this continuing several days, with great pain, and no flow of urine, may lead the attendants to conclude it is retained in the bladder, while the tense abdomen prevents the detection of the tumor.

“ Nous avons vu (continues the professor), dans un cas de cette espèce, plusieurs praticiens qui ne manquaient pourtant pas de lumières, tellement abusés par ces apparences, que la sonde ayant été portée vainement dans la vessie, qui était absolument vide, et l'élasticité de sa paroi postérieure repoussant l'instrument quand il étoit abandonné à lui-même, ils se persuadèrent qu'un obstacle dont la structure leur parut devoir être membraneuse, et qui leur paraissait occuper le canal de l'urètre, s'opposait à l'écoulement de l'urine et à l'introduction de la sonde dans la vessie. En conséquence, un long trois-quarts fut engagé dans le canal de l'urètre, et plongé dans les parties qui résistaient à la sonde. Cette opération n'amena pas d'urine, et la malade mourut peu de temps après. A l'ouver-

ture du cadavre, on reconnut que la vessie était vide; que les accès d'hystérie avaient été les symptômes d'une suppuration profonde des deux reins, et de la présence d'une masse de calculs urinaires dans ces mêmes organes; enfin, que la résistance que la sonde avait rencontrée venait de la paroi postérieure de la vessie, et que le trois-quarts avait été poussé contre cette même paroi et à travers le corps de la matrice." *

32. Keeping up a discharge from a blister, or issue, upon the loins, I have repeatedly known afford very considerable relief. Where a blister has been applied, it scarcely ever operates unfavourably upon the seat of the disease; at least, whenever the irritation from a blister has created inconvenience internally, its ill effects, as far as I have seen, have either been confined to temporary irritation at the neck of the bladder, or have gone on farther to excite painful uneasiness in the nearest absorbent glands; and both these effects, upon changing the blistering for the savine ointment, have immediately subsided.

33. When the secretion of urine becomes more free, and the symptoms are observed to verge more nearly to those ordinarily consequent to irritation from calculus, the treatment must be conducted upon the general principles laid down for the relief of those who labour under calculi in the kidneys.

CASE 3.

Partial Suppression of Urine, from Calculi in the Kidneys.†

A WOMAN was admitted into the Westminster Hospital, Aug. 7. 1765, reported with stone, under Mr. PYLE's care. There was a suppression of urine, occasioned, as supposed, by a stone or stones in the bladder; but on examination none were found.

* Précis Élémentaire, tom. ii.

† Extracted from a MS. of Mr. WATSON's; which, together with the disease, is preserved in Mr. HEAVISIDE's Museum.

While in the hospital she voided little water, yet, on passing the catheter on one occasion, as much as half a pint was found. She remained much in the same state for a fortnight, when she died.

In the abdomen the viscera were sound, except the kidneys; here was the source of her complaint, and cause of her death. Both these glands were in a soft, almost putrid state; and very much enlarged. In the pelvis of the right kidney was a tuberculated triangular stone, one angle of which had passed through an ulcerated hole in the pelvis, appearing externally. The pelvis of the kidney was exceedingly thin and tender round the part where it had given way.

Lodged in the infundibula of each kidney, calculi were found; in the cells of the right were several small stones, in those of the left, there was a great deal of sabulous matter, but only one stone that had reached the size of a pea. The ureter of the left kidney contained several small calculi, some distance down; these were not larger than peppercorns. In the bladder was a small quantity of sabulous matter, loosely adherent to its internal coat, otherwise the bladder was healthy.

The opening made by the stone through the pelvis of the kidney, must have allowed the urine to escape into the cavity of the abdomen; and thus have hastened the fatal termination of the disease.

CASE 4.

Suppression of Urine, from Calculi in the Kidneys.

Tuesday, Aug. 6. 1816. I opened the body of a healthy looking man, aged 83; subject many years to gravel, and occasionally passing small red calculi: for the last twelve months, and particularly within the last seven weeks, he had suffered much from an aching pain at the left side in the loins: always active, and on his feet, till within a week of his decease.

The whole of the preceding *Wednesday*, he had passed no water, nor from that time forward. From *Wednesday* to *Friday* evening, he had a constant and urgent desire to void urine; these symptoms then gave place to sickness at stomach, with bilious and fœcal vomiting.

On *Friday* morning he began to feel drowsy, and said he could not tell what made him so heavy; complaining also of headache and thirst. On *Friday* and *Saturday* he became progressively more comatose. On *Sunday* morning I was requested to see him, as he had for many days passed very little water, and for the last four days none at all.

He appeared as if asleep; but when shook or disturbed, opened his eyes, and spoke incoherently. The pulse was undisturbed; a silver catheter passed with perfect ease; two ounces and a half of pale urine were drawn off; he died the same evening.

On examination the kidneys, though small, were found loaded with fat.

In the pelvis of the left kidney was a large uric acid calculus, filling up the opening into the ureter; besides many smaller fragments of similar calculous matter. The irritable inner membrane displayed numerous capillary arteries ramifying on its surface. The pelvis and infundibula, however, did not appear to have secreted any excess of mucus, nor any thing resembling pus; these cavities contained only a brownish coloured urine, which, confined by the position of the stone, had produced some distension of the kidney.

In the right kidney were many fragments of calculous matter, and by a careful examination of the sections of the cortical structure, minute calculi, not so large as the heads of pins, were detected in the substance of the kidney; confined apparently in the tubuli uriniferi. In two or three instances, it seemed, that as these minute calculi increased, they had excited the action of the absorbents to remove a part of the surrounding substance of the kidney.

On various parts of the membrane lining the infundibula, I perceived small points, which examined with a magnifying glass, proved to be particles of calculous matter laying behind and shining through the membrane; several of these I cut down upon and turned out, with the point of a lancet.

The bladder, containing half an ounce of a brownish coloured urine, was remarkably small and thin. The inner membrane covering the prostate gland, and lining the neck of the bladder, had the appearances of irritability, though not in any excessive degree.

SECT. IV.

On Abscess, and other Diseases of the Kidneys.

34. THE propriety of treating of the following diseases of the kidneys, in a chapter professing to include only those affections producing suppression of urine, may be somewhat doubtful. It may, however, be perhaps assumed, that the functions of the kidneys have, in certain instances, been diminished or destroyed, under almost every particular change of structure known, while, in other instances, each of these deviations from healthy organization have been detected, without having appeared materially to prejudice the office of secretion; and that in other cases again, the separation of urine by the kidneys has been either temporarily suspended, or permanently set aside, without any trace of disease in these parts appearing after death. Indeed, so little is with certainty known, and so much remains to be ascertained by the diligence of future researches upon this subject, that the desire of regarding method and form must not be permitted to operate with too much rigour, in excluding facts practically important.

35. The favorable termination of inflammation in the kidneys, when resolution is at hand, will be ascertained by the signs already mentioned (22.): should the symptoms indicating inflammatory ac-

tion continue with undiminished violence beyond the first week, the chances will be unfavorable, and there will be reason to apprehend that suppuration, abscess, or some chronic derangement in structure, will follow.

36. Where suppuration is about to take place, the feeling of heat, and acute pain in the loins, diminish, giving place to a sense of throbbing or pulsation. There are slight occasional chills or rigors, and the patient sometimes complains of increasing sense of weight or heaviness in the part. M. DESAULT observes that the numbness and stupor previously felt about the hip, and down the forepart of the thigh, is either increased, or changed to an acute shooting pain.

37. When abscess forms within its substance, the kidney will occasionally become much enlarged, its healthy texture being injured or destroyed. Provided neither calculus nor other mechanical obstruction prevents, matter deposited within its general cavity may flow down into the bladder, and so escape with the urine. Frequently, however, a collection of matter occupies a part only of the cortical substance of the gland, from which there is no ready outlet; this collection increasing, some part of the thickened parietes becoming weaker than the rest, give way, and the purulent contents find an exit, either through the medium of previously formed adhesion, into some part of the intestinal canal, or by escape into the cellular membrane covering the kidney; thus making itself, sometimes, a way between the peritoneum and psoas muscles down towards the groin. In some such cases, the matter reaches the external integuments; in others, it produces suppuration backward, with tumor, pointing at some part of the loins, when it may be either opened by an operation, or induce for itself a fistulous passage. (Case 6.) It may, lastly and least favourably, fail in the attempt to establish a safe exit, and burst at any

point through the peritoneum into the cavity of the abdomen, inducing peritoneal inflammation and death. (Case 5.)

38. When abscess has taken place in the substance of the kidney, the most favorable direction in which it can break is into the general cavity connected with its pelvis. With a view to assist any disposition of this sort which may be presumed to exist, some have proposed to excite vomiting, sneezing, or coughing. As, however, it is totally impossible in the advancing stage of any case of this kind, or, indeed, during life, to ascertain with precision the exact state of the parts affected, the consequences of such attempts must often be injurious, and always uncertain ; for which reasons, it appears much more proper to leave this work to nature, and wait patiently its success.

39. Ulceration of the membrane lining the cavities of the kidney, frequently takes place, and should it continue, may go on to involve, progressively, the whole of the substance of the gland in disease. In the Museum of the Royal College of Surgeons, is a specimen in which the membrane lining the pelvis of the kidney is raised in small spots by coagulable lymph effused into the cellular substance behind it, from the centre of some of which spots, the membrane has subsequently ulcerated away. Generally, however, the irritation producing the mischief operates on a much more extensive scale, but even then these diseases may continue long before they prove fatal. Dr. CLARKE mentions a man more than two years subject to great pain in the left kidney, with distress and difficulty in passing his urine, which contained large quantities of greenish pus ; till at length worn down by disease, he died. On inspecting the body, the left kidney, twice its natural size, contained half a pint of greenish pus, in many cysts ; the bladder being thickened, and containing pus similar to that in the kidney. *

* Edinb. Med. Journ. vol. v.

40. The degree of enlargement the kidney may thus undergo, is sometimes astonishing. * CABROLIUS removed from the dead body a kidney so immensely enlarged as to weigh fourteen pounds; it was converted by disease into a large abscess, and had occasioned symptoms supposed to proceed from stone. † Neither is the formation of abscess confined to an advanced period of life; for, in one instance, in an infant of a few months old, both kidneys were found enlarged beyond the size of a duck-egg, apparently much inflamed, and containing each more than a table-spoonful of pus; the bladder being full of a purulent fluid; there was also half a tea-cupful of water in each ventricle of the brain. ‡ Mr. WATSON remarks that, in this case, all the mischief arose from the inflammation in the kidneys; and doubts if hydrocephalus in children be not often owing to this cause, induced by improper diet, or over-feeding. (29.)

41. Abscess in the kidney, as a consequence of inflammation, necessarily supposes the preceding existence of inflammatory action, with its attendant diagnostic symptoms. There are, however, exceptions to this rule. It appears that the kidneys, like most other glandular structures, are susceptible of scrofulous, as well as healthy, inflammation; and although I am not aware that the remark has been made by others, observation induces me to believe that the symptoms that attend in the one case, are very different from those that occur in the other. In healthy inflammation, the region of the kidney is the seat of the principal distress; in scrofulous inflammation, the sympathetic irritation at the neck of the bladder takes the lead; and, in fact, is generally the only apparent source of misery to the patient.

42. A case of this kind, as it appears to me, is

* PLATE II. *Fig. 1.*

† *Alphabetum Anatomicum. Obs. 28.*

‡ From a MS. of Mr. WATSON'S, in Mr. HEAVISIDE'S possession.

related by Mr. DOUGLAS, in which, for eighteen months, there was heat, pain, and constant desire to void urine, followed by great misery. On standing, the urine assumed a greasy appearance, like lime-water, after some time depositing a purulent matter in great quantity, but without offensive smell. The recent urine was thick and whitish, but on standing deposited a sediment, and became clear. There was seldom any severe pain in the back, but frequently a total retention of urine. A colliquative diarrhœa, in spite of every means, proved fatal. The right kidney was found filled with foetid purulent matter; all its inner substance wholly wasted; its exterior part rendered so thin by expansion, that the slightest touch broke through it. The ureter, contracted in several parts, was surrounded by indurated glands. The bladder, contracted and firm, was internally as if excoriated, with little red fleshy carbuncles. The urethra exhibited marks of ulceration. It is curious that the opposite kidney was twice the natural size.*

43. Another instance where the peculiar characters of this disease were present, is related by Mr. GOOCH; who terms it "a very singular complaint in the bladder." A young gentleman, for gonorrhœa seven years before, had used strong mercurial purgatives, taken cold, and had the discharge stopped by large doses of the Bals. Copaib. The most violent straining, and extreme pains in making water immediately came on, and never afterward left him. Opiates alone mitigated his sufferings, in which two ounces of the Tinct. Theb. in the twenty-four hours, often procured a little ease, but no sleep. The urine contained much pus, with mucus, and sometimes pieces of a soft fleshy substance. Under suspicion of stone, the most eminent surgeons had sounded him to no purpose.

* Philos. Trans. vol. xxvii.

His health and strength consumed in torment and misery, he died in the eighth year of his disease.*

I have attended one very strongly marked case of this kind, in a young woman, in which, although it proved fatal, the kidney was least of all suspected, either by Dr. JAMES, Mr. HEAVISIDE, or myself, as the seat of disease. By reference to the case, a remarkable coincidence between it and those just mentioned, will be found in several important symptoms (Case 8.); although the appearances of the disease on examination, it will be seen, differed very much from those commonly attendant on inflammation. In the Museum of the Royal College, is an injected specimen of a similar affection of kidney from a scrofulous boy; shewing that the deposit of albuminous matter is not obviously organized, at least not apparently vascular, having received none of the injection.

44. I believe another case on which I was consulted by Mr. BARROW, *Jan.* 1822, was of this kind. It was in a young lady of fair complexion and scrofulous habit. Married four years, she from that time dated her distress, by irritation and extreme pain in making water. As in the other case, this lady had been sounded, and I repeated the operation; but no stone nor other disease was found. The urine was clear and of healthy appearance. Pregnancy had no material influence in relieving the symptoms. The medicine directed was steel, and in a few weeks it certainly had proved useful; the irritation at least was in her opinion diminished. I at first suspected the uterus in this case; but latterly thought it a scrofulous affection of kidney.

45. Where from healthy inflammation abscess has formed, the period when it breaks may be usually determined by diminished throbbing, fullness, and uneasiness, and by observing that the

* Gooch's Chirurgical Works, vol. i.

urine again flows more freely, if it has burst into the cavities of the kidney. This event may be determined with more certainty by the quantity of purulent matter mingled with blood that passes off with the urine. Should the disease, however, be scrofulous, these circumstances do not take place, neither is there, as far as I know, a single symptom by which the affection can be distinctly recognized.

46. The principle of treatment to be held in view, where abscess has formed in the kidney, must be regulated by constitutional, as well as local, circumstances in each case. Should it appear that a disposition to healthy action prevails, astringents of gentle power, balsamic medicines, the balsam of Mecca, Peru, copaiba, or perhaps terebinthinate mixtures, may be cautiously tried, and continued, provided the appearance of the discharge improves, or its quantity lessens under their use; but laid aside, if feverish symptoms, renewed local pain, or other change for the worse takes place under their administration.

47. When, however, it appears that the disease is scrofulous, or that a tendency of this kind prevails in the system, it appears to me that the more direct tonics, on which we depend in the more common varieties of scrofula, should be here also had recourse to. Medicines containing lime-water may perhaps be tried for a time; but the preparations of bark, or the mineral chalybeate springs, if the waters are cautiously taken, and steadily persevered in, appear likely to confer more benefit than any other plan, provided due attention is at the same time paid to the observance of a proper diet, including milk, and other unstimulating but nutritious substances. Medicines containing steel may in some instances agree well, where the mineral waters will not answer. Should these means upon trial not appear to do good, I should myself have just the same confidence in recommending sea air, and sea bathing, in this as in any other scrofulous

affection; although well aware that even this remedy does not always succeed.

48. It is, however, consolatory to know, that although our efforts to restore local health, may in certain diseases fail, yet if we have been so far successful as to have re-established the constitutional health, the local disorder frequently becomes harmless, proceeding no further; and under these circumstances it generally happens that increased action in the remaining healthy kidney, compensates for the diminished power of that which may have been the subject of disease. (42.)

49. Should the abscess, through the medium of adhesions, have been enabled to pass its contents into the intestinal canal, most probably some part of the colon, the event will be determined by the signs mentioned (45.), with the addition of sudden disturbance of the bowels, in which purulent matter mingled most commonly with blood, passes off by stool.

50. Where the symptoms indicating inflammation and suppuration of the kidney, are succeeded by tumor in any part of the lumbar region, there will be strong reason to conclude abscess has taken place. In this case some have advocated the early opening of the tumor, to ensure a safe outlet for the matter, while others have urged the greater propriety of leaving every such difficulty to nature. It is scarcely possible to lay down general rules, under such circumstances. Much, it appears to me, should depend on the apparent disposition or power of the constitution to assist itself. Should the formation of matter, and advance of the tumor containing it, have created but very little general disturbance, there will be some encouragement to venture a chance for the advantage of the patient; but where, on the contrary, we find the health and strength much reduced, and the hectic flush already upon the cheek, there will be little

reason to hope for any essential improvement in the condition of the patient, from an operation.

51. Should the circumstances of the case stand in favour of letting out the contents of the abscess, it is desirable that the matter should be previously brought near to the external integuments; for which purpose fomentations and poultices may be directed. The part where the point is most clear, and the volume of fluid most evident, being selected, the skin first divided from above downward for an inch, will enable the operator to determine with precision as to the thickness of the cyst, through which a large-sized common trocar may then be cautiously pushed forward until no resistance is felt. The stilet being then withdrawn, the fluid contents flow off; and the stilet may be either removed, retained, or replaced by one of elastic gum, secured either by a bandage, or by adhesive plaister. Should the matter be found to lay deep, and require dissection, it will be necessary to be prepared for bleeding, and small-sized curved needles must be therefore previously laid ready, as ligatures will by this means be more readily applied here than by the tenaculum.

52. For the performance of operations where, as in this case, it is important to know the instant when the point of the instrument reaches the fluid contents of the cyst, I have often thought the common trocar might be much improved, by having a groove cut upon one of its flat sides, commencing at the point, and carried along the stilet quite to the handle; this would inform the operator not only of the moment when the instrument should be withdrawn, but more promptly acquaint him with the nature of the contents of the tumor.

53. The contents of the abscess let out, the cavity has the opportunity of gradually contracting itself; to favour which change, attention must be paid to prevent the external opening closing too soon. When such abscess is connected with the

cavities of the kidney, the urine will of course flow off by the wound, and it may then be difficult, if not impossible, to prevent the continuance of a fistulous opening. This circumstance, however, although uncomfortable, is not in itself attended with risk, numerous instances having occurred of fistula in the loins discharging urine for many years.

54. Where the abscess, however, breaks into the cellular membrane surrounding the kidney, the case generally terminates unfavourably. Disease takes place in neighbouring parts, the matter becomes unhealthy by confinement, and fever increasing, the patient sinks. (Case 7.) The consequences that follow upon the escape of purulent matter into the cavity of the abdomen, have been already noticed. (37.)

55. The treatment under continued discharge from abscess of the kidney, will depend on the health. If the patient preserves his strength, appetite, and spirits, little will be required beyond a nourishing diet, of easy digestion. Should, however, the health give way, and hectic flushes arise, the constitutional powers must be supported by the most assiduous administration of tonic and cordial medicines, with strengthening diet, and, if expedient, change of air.

56. The above observations apply to collections of purulent matter formed in the kidneys, but these parts are also occasionally subject to other chronic derangements of structure; sometimes without the intervention of accident, but generally as the consequence of external violence. Dr. CLARKE relates an instance in a child, of the kidney diseased from a blow, forming a large encysted tumor, five pounds weight. The inner surface was of an ash colour, surrounded by a white, fatty, or steatomatous substance, which on pressure effused a fluid, and some solid substances, not out of cysts, nor resembling hydatids. There was no internal cavity,

collection of fluid, or remaining trace of the natural organization of the kidney. * In another instance, after repeated attacks of pain in the region of the loins, numbness of the leg upon the same side, sickness at stomach, and a black sediment in the urine, increased pain and irritation followed, ending fatally. The left kidney was found enlarged to five pounds in weight, and formed into large cysts filled with a grumous bloody fluid. Two or three of these cysts were accidentally ruptured in separating the disease from the surrounding parts, and others opened by making a section through the tumor. Mr. COWPER, who relates the history, observes, that in these cases the serum of the blood, together with its colouring matter, passes off by the kidney; such urine becoming thick, when heated in a spoon over a candle. †

57. Neither must it be taken for granted that, where a large fluctuating tumor presents in the seat of a diseased kidney, it will be always found to contain purulent matter. A case is mentioned by Mr. MARTINEAU, in which such a tumor was tapped, and ten pints of bloody fluid let out. The same tumor filling again was a second time punctured two years afterward; but opened with a lancet instead of a trocar, the fluid escaped into the abdomen, and the patient consequently lived but a few days. On examination it was found that the left kidney (the ureter quite obliterated) had enlarged, by gradual distention, into an immense bag, containing the fluid discharged in each operation. ‡

58. In some rare instances the kidney has been known to suffer a degree of enlargement truly astonishing. M. LIEUTAUD mentions an instance where it was dilated into a bag, containing as much as six pints of fluid ||; but one of the most singular cases, perhaps, of this kind is related by Mr. GLASS,

* Edinb. Med. Jour. vol. iv.

† Med. Comment. vol. ix.

‡ Phil. Transact. vol. xix.

|| Précis de la Med. tom. ii.

of a congenital dropsy. The mother dropsical in her pregnancy, the infant was born with the abdomen full of water, but otherwise healthy ; and, though the disease increased as she grew up, she lived to be twenty-three years old ; she was otherwise healthy, but of enormous bulk. The catamenia left her eight months before her death, and from that time she declined with the usual symptoms of dropsy. On perforating the abdomen, near thirty measured gallons of a light coffee-coloured fluid came away. Laying open the belly, a large membranous bag, that had contained the water, presented itself, partially adherent to the anterior parietes of the abdomen, and occupying nearly the whole of its cavity. In appearance, colour, thickness, number, magnitude, and distribution of blood-vessels, it much resembled the uterus of a cow, at the end of gestation. The whole inside was scabrous, as if parboiled, and within it was a small remaining quantity of a coffee-coloured fluid. On the left interior part was discovered the orifice of a duct, which opened obliquely into the cavity of the sac, and easily admitted a goose-quill. This tube advanced twelve inches between the membranes of the bag obliquely upward to the right ; whence it was inflected downwards, and passed between the duplicature of the ligamentum latum uteri, to be inserted into the bladder of urine. The left kidney, with its blood-vessels and ureter, were in their natural state and situation. The urinary bladder was very small but sound. Search was next made for the right kidney, but no such viscus was found, unless the sac that contained the water might be esteemed such. The disposition of the vessels on the right side favoured this opinion, as they passed from the aorta and vena cava to this sac, in the same manner as to the opposite kidney, and having run twelve or fourteen inches between the membranes of the bag, without

throwing off any branches, were afterwards distributed over it, in the manner described.*

59. There can be no doubt that in the above case the immense sac found after death was originally the kidney; and the enormous enlargement that it had suffered affords a possible, if not probable, explanation of certain rare examples of disease, which viewed in any other light appear quite inexplicable. (Case 9.)

60. The most ordinary effect of distention is commonly a degree of enlargement, more or less considerable, of the internal cavities of the kidney. This change, which reduces the substance of the kidney, giving it the appearance of a number of cells or cysts, is usually the consequence of continued accumulation of urine, either from calculi, or other mechanical obstruction, preventing its escape by the ureter.† I have, however, in several instances removed kidneys affected in this way, where the state of the parts afforded no very satisfactory explanation of the fact.

61. A favourable opportunity, through the kind attention of Dr. JAMES, recently occurred for determining the appearance of the capillary circulation when thus circumstanced. I removed a kidney, enlarged from the escape of urine being prevented by a calculus in the ureter; and injected it with size and vermilion. Upon the clear white surface of the mucous membrane lining its cavities, numerous small red specks were perceived, which, rendered distinct by a magnifying glass of considerable power, proved to be minute clusters of very finely injected capillary arteries. The preparation is preserved in Mr. HEAVISIDE'S Museum.

There is a similar kidney, injected by Mr. HUNTER, in the Museum of the Royal College of Surgeons; the vessels upon the inner membrane are

* Phil. Trans. vol. xlv.

† PLATE I. *Fig. 2.*

numerous, and the capillary arteries are in many points distinctly visible to the naked eye.

The most recent and best example, however, occurred lately in a man long distressed by a nearly impervious stricture; and who only a few days before his death was admitted, under Mr. HEAVISIDE's care, into the Infirmary. On opening the body, finding one of the kidneys rather enlarged, I removed and carefully injected both. The left contained a little urinous fluid, and some shreds of flocculent albuminous matter, which during life had been effused from the same exhalent arteries that were now injected. In some parts the pure transparent size, in small masses equal to grains of sago, had passed either by the exhalents or by the tubuli uriniferi, and lay upon the injected membrane. By the naked eye many clusters of arteries were seen distinctly; but the whole surface had a decided red blush, which by a glass of small power I found partly, and by one of greater power entirely, dependant on myriads of finely injected vessels, principally dispersed in the texture beneath the surface of the membrane. In the right kidney the appearances were similar; but here some of the finer particles of the vermilion had passed with the size, by which the little masses that had transuded were consequently found tinged. The right kidney is deposited in Mr. BROOKS's, the left in Mr. HEAVISIDE's Museum.

Occasionally the kidney is found not only subject to this kind of enlargement, but the secreting vessels separate unhealthy urine, not containing the more usual varieties of calculous matters, but depositing carbonate of lime. I first met with this disease in opening the body of a person who never was known to have suffered from nephritic complaints. The kidneys were accidentally examined; the right was perfectly healthy, and larger than common; the left, also enlarged, felt as if crammed

with a stiff pulpy substance. Removed, it was extremely heavy for its size, weighing more than a pound and a half. Cut into, the pelvis and infundibula were found full of a peculiar compact earthy substance, consistent like birdlime, and of a pale yellowish grey colour, which substance Professor BRANDE did me the favour to examine, and found to consist of nearly pure carbonate of lime, mingled with an extremely tenacious animal matter. The accumulation of this substance had probably been going on a long time, as the cavities containing it were enlarged by the continued pressure, attended with a partial removal of the solid structure of the gland. The artery and vein were readily found, but although the parts were dissected, I could perceive no remaining trace of the ureter, so that the healthy functions of the kidney must have ceased very long before.*

63. I have since seen, in the Museum of Mr. BROOKS, a similar specimen, in which the absorption of the healthy structure of the kidney has become nearly complete, leaving little more than a membranous cyst filled with dense earthy matter. In this preparation some remains of the extenuated ureter still exists. The peculiar consistence of this substance, and its precisely similar appearance in these two instances, might suggest a doubt as to the circumstances under which it is first deposited. This, however, is removed by the preparation of a kidney in Mr. HEAVISIDE'S Museum, demonstrating the intermediate state between simple distention, and the deposit of the tenacious carbonate of lime. A small glass contains a part of the contents found in the kidney, one third part of which is a fine, white, dense, cretaceous powder; the remainder a urinous fluid. The surfaces of the cells within the kidney are still seen partially coated with particles of the same white matter as that let out from their

* This disease is preserved in the Museum of Mr. HEAVISIDE.

cavity. The remaining kidney from the same person, also preserved, affords still further illustration; enlarged in proportion to its increased duty, the same morbid disposition may be perceived to have existed in this, as in the other, by the white particles of cretaceous matter adhering to the cavities of the infundibula, attended with much irritation, inducing the formation of a small abscess, in the cortical substance at the upper part of the kidney, connected by a small opening with its pelvis.

In the Museum of the Royal College of Surgeons is a kidney exhibiting a calculus of the dark brown colour of lithic acid, impacted in the pelvis; all the remaining cavities of the gland, several converted into ossified cysts, being filled with a peculiar matter, in appearance and consistence exactly similar to the carbonate of lime above described. We must conclude, I think, in this case, that the uric acid calculus was first formed, and that the diathesis became afterward most completely changed; for the subsequent deposit exhibits no trace of any such tendency, except in the existing calculus, the escape of which was accidentally prevented.

64. The kidney is, however, subject to other chronic derangements of structure, one of the principal of which is the formation of serous cavities, or cysts, within its substance, or upon its surfaces. The most common variety of this disease consists of cavities filled with a limpid fluid, in some instances few in number, occupying the external part only; in others exceedingly numerous, and dispersed throughout the substance of the gland. I have most commonly seen these appearances between the peritoneal surface, and the cortical substance of the kidney; part of the transparent membranous cyst raised above the surface, and part of its fluid contents buried within the substance of the gland. These cysts appear to originate in the fine cellular texture, connecting together the solid structure of the kidney. Serous fluid is deposited at certain

points, and as this fluid accumulates, the pressure from within probably operates by condensing the cellular structure, so as to form a kind of fine cysts. As these cysts progressively increase in size or number, the solid substance of the kidney is removed by absorption, till at length, where the disease has been of long standing, scarcely a vestige remains of the natural organization. The most beautiful specimen I have ever seen of this disease, is to be found in the elegant collection of Dr. HOOPER. The kidney is much enlarged, and entirely converted into a closely disposed assemblage of cysts. A section carried through the whole, exposes these cavities, from the size of a currant, up to that of a walnut, without any remaining trace of healthy structure.

65. Another variety of serous cysts, to which the kidney is subject, constitutes the true hydatid; where the fine membranous bags containing the fluid, instead of being intimately connected with the surrounding parts, as in the former kind, are loose and detached, so that if the serous cavity containing them, happens to rupture into the pelvis of the kidney, the hydatids may escape into the ureter, and thus finding their way down into the bladder, pass off with the urine.

66. The symptoms attending these affections, are always extremely obscure, and in some cases pass entirely unnoticed. In a case mentioned by Dr. DAVIS, a middle-aged lady, after repeated attacks of pain in the loins, had regular symptoms of stone in the left kidney—a grinding or acute pain in the part, vomiting, the urine in the paroxysm tinged with blood, and containing small shreds of coagula: during the attack more than a dozen hydatids were passed, thin and membranous; some an inch and a half long, the thickness of a goose quill, and filled with a fluid, which in taste and smell appeared to be urine. The paroxysm generally lasted some hours, and when

all the hydatids had come away, which happened in the successive endeavours to void the urine, the pain in the back, &c. abated, and she continued easy and well for the rest of the day. The patient perfectly recovered. *

67. One of the least frequent consequences of disease in the kidney, is induration, or scirrhus. This state has been described as one of the occasional effects of inflammation, and M. DESAULT has enumerated the symptoms with which he considered the affection might be attended; upon none of these signs, however, should I confidently rely, as enabling the practitioner to distinguish a scirrhus affection of kidney from any other chronic state of disease.

68. Should the symptoms of inflammation in the kidney suddenly give way, all local pain suddenly subside, the pulse losing its firmness and becoming unsteady, there will be ground for apprehending that overpowered and exhausted by excitement, the increased action is sinking into a state of gangrene. This occurrence, which I have never myself witnessed, appears to be invariably fatal. It is right always to bear in mind the possibility of so serious an event, as an additional motive to activity and vigilance in relieving and moderating that excess of action which can alone lead to it.

69. Provided, however, the general health is good, it is remarkable how considerable a degree of irritation the kidney will sometimes be able to support. A case proving this is related in Dr. HENNEN's valuable work on Military Surgery, where a large fragment of cloth, driven by a musket ball through the body, lodged in the kidney, inducing repeated abscesses and severe peritoneal inflammation, was afterwards traced by its symptoms making its way down the ureter into the bladder, and thence outwards by the urethra, after

* Phil. Trans. vol. xxii.

nearly eight months of protracted and severe suffering, from which the patient eventually recovered.

CASE 5.

Abscess of the Kidney, from Calculous Irritation, producing Death by breaking into the Cavity of the Abdomen.

IN May, 1813, I examined the body of a child, aged seven years; his mother said his infancy was healthy, but that at eighteen months old, his urine, high coloured, was voided with straining, and sometimes pain. These symptoms varied in degree, but gradually increased. At four years old, he was seized with severe distress and pain in making water; the urine red as blood, depositing a sandy matter, feeling like coarse gravel.

When five years old, the distress, frequency, and straining in passing water, were so urgent as to lead to the suspicion of stone in the bladder. He was taken to a surgeon, who sounded, felt a stone, and advised the operation. The mother, however, determining, as she said, "to go upon sure ground," brought the child to Mr. HEAVISIDE, who, seeing the disturbed and highly irritable state of the constitution, was of opinion the operation should at least be postponed, until the general health was improved.

The fits of pain and distress, commencing in the loins, and passing down toward the bladder, still returned frequently as ever; he wasted in flesh, till at length an attack of excruciating pain and irritation, with fever, came on. He had now great pain, with excessive tenderness, over the whole abdomen, and could scarcely endure the weight of the bed-clothes. Under the pressure of these new complaints, he rapidly gave way, and within a week, died; worn out by continued pain and irritation.

The body was emaciated, but the abdomen tumid.

On opening its cavity, a quantity of pus, of a strong urinous smell, appeared loose among the intestines. The purulent fluid was consequent to extensive peritoneal inflammation. Both kidneys, especially the left, had suffered inflammation. They were studded externally with the appearance of pustules, from little abscesses, formed in the cortical part, shining through the peritoneal covering.

Upon the left kidney, an attempt had been made, by the effusion of coagulable lymph effecting an adhesion with the intestine, to form a safe passage for the discharge of the contents of the largest abscess. This attempt failing, the matter had passed with the urine into the general cavity of the abdomen, exciting peritoneal inflammation, and thus hastening the fatal term of the disease.

The ureters much enlarged, and internally inflamed, were filled with purulent matter.

The coats of the bladder were thickened, and its inner membrane highly irritable, containing a flattened oval calculus, an inch in length, made up of numerous thin alternate strata, of uric acid and the phosphates, deposited upon a uric nucleus. Besides the calculus, the bladder contained a little urine, and a pretty large proportion of a thick white mucous matter.

The diseased parts, illustrating this case, are preserved in Mr. HEAVISIDE's Museum.*

CASE 6.

Large Abscess in the Kidney, terminating fatally. †

IN 1794, I visited a young lady, who had been married about a year. She became subject, about five months previous to my seeing her, to irritation

* See PLATE I. *Fig. 3 and 4.*

† The following history, with the disease itself, are preserved in the Museum of Mr. HEAVISIDE, who was the consulting surgeon in attendance.

at the neck of the bladder; she had frequent desire to void urine, which deposited a great quantity of thick mucus. These complaints she attributed to having taken cold during menstruation, which suddenly ceased, and never returned.

The disorder continued six weeks, in spite of opiates, and other rational means. It then suddenly left her, upon the accession of a pain in the back. This pain was constant, and seated in the right kidney. A few days subsequent to its commencement, a tumor appeared upon the part, and gradually increased, extending towards the region of the liver. This gradual external increase of tumor went on for about two months.

In this stage of its progress, I was called upon, and found a large tumor in the region of the liver, hard, extensive, and evidently containing a fluid. I said this seemed to be one of those cases I had sometimes seen, wherein the disease had never existed in the part where the first symptoms had appeared. That I conceived she never had any disease in the bladder, but a symptomatic action from an original affection in the right kidney, which, perhaps, might have suppurated, and during the inflammatory stage, formed adhesion to the liver, so as to point through that viscus. That although there was matter, the great hardness all around made it better to wait till it was nearer the surface, being yet deep seated; and that in whatever viscus it might be, the making an opening into it would afford the only chance, though a small one, of recovery.

In a few weeks the fluid came forward, and the attending surgeon desired me to open it, provided I thought it right so to do. Accordingly I carefully dissected down to it, between two of the lower ribs, over the region of the liver, till I came to a white, shining tumor, into which I plunged a hydrocele trocar. Five pints and a half of very offensive matter were let out. She lived six weeks

after the operation ; and in order that the bed might be kept clean, without improper confinement of matter, a hollow canula was kept in the opening, and the discharge let out twice a day ; the quantity evacuated each time, measuring four ounces. She gradually, however, became hectic, sunk, and died.

The liver was sound, but united by adhesion to the right kidney. The urinary bladder also was perfectly healthy. The whole of the disease was confined to the right kidney, which was greatly enlarged, and had within it a very large abscess, into which an opening had been made, when the contents were first let out. From this abscess had been discharged at first, five and a half pints, which with half-a-pint daily, for forty-two days that she lived after, being twenty-six pints and a half, formed a total of thirteen quarts of matter evacuated in the above period of time.*

CASE 7.

Abscess in the Kidney, discharging itself behind the Peritoneum ; with communication between Rectum and Bladder.

June 4. 1814, I was requested by Dr. HOOPER to examine the body of a gentleman who had died at Islington, aged 65 years. The following is an outline of his history. About four months previous to his death, he had been attacked with a vomiting and purging of blood, with febrile action, throwing out a number of petechiæ. These complaints prescribed for, were relieved. He then became affected with constant and violent pain in the left loin. The urine was thick, depositing what appeared to be purulent matter. His complaints were now treated with bougies, by an eminent surgeon, who said he had a stricture, though he declared he never in his life had any difficulty in passing his water.

* See PLATE II. Fig. 1.

In three weeks the pain moved from his loins down towards his hips, and as this took place he found himself easier above. Soon after this change, he observed he made less water than usual, that his stools were more fluid than usual, and had the smell of urine. This went on for a week or two, when things appeared to be reversed; he now made plenty of water again, but with it there sometimes came a fluid fœcal matter by the urethra, and frequently flatus, passing forth now and then with an audible and most unpleasant sound. With these complaints he was harassed to the day of his death.

On examination, the peritoneum covering the left internal iliac and psoas muscles was found raised up by a large collection of matter in the cellular texture behind it. Some purulent matter found loose in the abdomen, was explained by pressing the membrane confining the abscess; the matter was seen to flow from a small ulcerated opening in the peritoneum.

This abscess, laid open, was found to have separated the kidney from the muscular parts behind it, quite up to the lower ribs, extending itself down to Poupart's ligament. The quantity of matter found in the abscess was about twenty ounces.

Several abscesses occupied the infundibula of the diseased kidney. It was one of these that had burst through the kidney backward into the cellular membrane, making its way as above stated.

The contents of the large abscess had discoloured and almost disorganised the muscular surface upon which it lay, rendering the cellular membrane and peritoneum sloughy to some extent.

A circumscribed inflamed spot had formed between the posterior surface of the bladder and anterior surface of the rectum, producing adhesion; within this circle of adhesion a small passage was found, by which a probe passed, where ulceration had established a communication, connecting the two cavities.

CASE 8.

Scrofulous Abscess of the Kidney, and diseased Ureter; with irritable and ulcerated Bladder.

A YOUNG woman, aged 26, complained in *July* 1820, of a weight and bearing down, with desire to void urine every quarter of an hour. The urine was in appearance clear and healthy. Pressure upon the bladder gave her some ease. As she had constant sense of heat in the urethra, though not the least discharge, Mr. HEAVISIDE kindly directed her to use a sedative lotion, and it much relieved her.

Some months after she visited a physician, who thought her complaints arose from stone. At his suggestion a surgeon in the neighbourhood sounded the bladder, but no stone was found, though the operation proved extremely painful. The uterus examined, was apparently healthy. Her complaints became progressively worse.

April 5. 1821. The bearing down pains were so violent, as in every respect to resemble those of labour; the women said they were precisely as if a child was forcing its way through. Indeed, during the severity of the paroxysm she cried and screamed vehemently, and could not be satisfied that something was not forcing through; till a female friend having examined, assured her to the contrary. Towards night she became easier.

About this time she became subject, for several weeks, to pains in the loins, passing down the ureters to the bladder; these pains most severe upon the right side, were extremely acute in the urethra, as if knives or needles pierced it in every direction. Coming on in fits, it returned for a few minutes, as often as she passed water. If one severe paroxysm lasted ten minutes, the next would continue only two or three, and so on.

July 6. The urine perfectly clear, was voided about every half hour. To allay the irritation and bearing down, still the most urgent symptoms, she

was directed by Dr. JAMES to take 30 drops of tincture of opium, with the same quantity of tincture of hyoscyamus, in a little water, every six or eight hours. These remedies, occasionally modified or changed for other opiates and anodynes, with constant attention to the bowels, formed the basis of her future treatment.

July 7. I found her in a violent fit of nervous tremor and agitation, moaning with pain, having just voided her urine. She entreated me to think of some means of relief.

July 13. I tried a solution of four grains of opium, in four ounces of water; two ounces and a half of which solution I injected warm into the empty bladder. The first effect was the instant production of violent pain and screaming. In three minutes I allowed her to evacuate the contents of the bladder. This she did with facility, and soon became much easier. Towards evening she felt unusually comfortable; and during the next day, in passing water, and in the intervals, was infinitely better than before the operation.

About this time a small semi-transparent cloud appeared suspended in the urine, somewhat resembling the albuminous matter or fluid white of an egg, without any mixture of yellow, opaque, coagulated, or purulent matter.

July 21. Only disturbed once in the night, to pass water, so much was the irritability relieved; the pains remained much as before. The medicines were continued, but her dread of present suffering induced her to hesitate, when the repeating the injection was mentioned.

During *August* and *September*, she remained much the same, except that her strength manifestly declined.

September 27. She was directed to introduce, per vaginam, a rolled pill, containing one grain of opium, and three of the extract of hyoscyamus. This application was repeated, but as it each time

induced very severe pain in the urethra and bladder, it was laid aside.

October 9. The complaints about the urethra and bladder much easier, sometimes her urine passing almost without any pain; she, however, complained that her hips were becoming sore, from laying.

October 18. Much weakened, by an attack of diarrhœa, which, by medicine, had been relieved; she complained most of her hips, upon which, notwithstanding every care to prevent it, painful ulcers had formed.

November 6. A return of diarrhœa was again relieved by medicine. The original distress and pain in the urethra had returned, bad as ever. The urine also, of late, had thrown down a matter similar to that formerly noticed. She continued to decline, became excessively emaciated, and upon *December 20*, was happily released from her sufferings.

On examination, the stomach and bowels sound; the latter, in parts, bore traces of irritability. The rectum, uterus, and bladder, removed; the right ureter, where divided, was found to be greatly thickened, apparently from the deposition of a pulpy matter in the cellular texture between its coats. The uterus was healthy; but the Fallopian tubes were indurated, and in the right, was a small granulated bony tumor, the size of a pea. The ovaria were indurated, but not enlarged. The bladder externally felt healthy. On laying open the urethra, its inner membrane was of a very dark colour, from excessive vascularity. I examined the mucous membrane of the bladder with great care; it was uncommonly fine and transparent. Its folds, in some parts, seemed, at first, to be covered with blood; but, on close inspection, it proved that the blood effused at certain points behind the membrane, had protruded it inwards, giving an appearance resembling small fungous processes.

The surface of the mucous membrane, examined

with a glass, was found in many parts, and especially towards the neck of the bladder, removed, in minute, ragged, ulcerated spots. The inner membrane, however, was so fine, and the cellular texture of the ulcerated parts so little discoloured, that the real state of the cavity would have escaped notice, had not the edges of the ulcerated portions been, in some points, of a darker shade, and perceptibly elevated above the general surface.

The right kidney, considerably enlarged and diseased, had its pelvis and infundibula converted into so many cysts; and from the pelvis, thickened, but scarcely enlarged; the diseased change extended along the ureter, producing thickening of its coats. Like the cavities of the kidney, the canal of the ureter was, through its whole length, lined, and almost filled, with a soft, tenacious, yellowish coloured matter.

The section of the kidney exposed the diseased state of its cavities; the deposit of the above-mentioned matter, every where upon its internal surfaces, and also to a certain extent disease of the substance of the kidney, proceeding in my opinion from these surfaces, by a secretion into the cellular texture of a pulpy matter, similar to that with which the cellular substance of the ureter was loaded. I was more particularly led to this conclusion, by the most careful examination I could make failing to discover, in any part, the least remaining trace of the mucous membrane lining the infundibula; a circumstance, which, considering the ease and freedom with which most of the pulpy matter admitted of removal, could, in my mind, only be explained by assuming that even the fine laminæ of that membrane were dispersed and lost, in consequence of the secretion of pulpy matter having been deposited within its cells and between its laminæ, as freely as upon each of its surfaces. *

* The diseased kidney, ureter, and bladder, are preserved in Mr. HEAVISIDE'S Museum.

CASE 9.

Extraordinary Disease, probably of Kidney.

A YOUNG lady, aged 24, first observed an enlargement in the abdomen, in 1816, slowly increasing, till it equalled that of an eight months' pregnancy; which tumor, with occasional variation, remained. *November 5. 1818*, she first had retention of urine, for which, a catheter was passed, and two quarts of water drawn off. The instrument was regularly introduced, but the quantity of urine decreased, so that on *November the 10th*, only a dessert-spoonful passed. This state of things continued till the 8th of *December*, while powerful medicines were given, the warm-bath tried twice, and electricity four times, with little benefit, as there never was more than an ounce or an ounce and a half of urine drawn off every two or three days. But on *December the 8th*, a sudden influx took place, and lasted 20 days, during which 17 gallons, and half a pint of water passed from the bladder by the catheter. *December the 29th*, the urine again ceased to flow into the bladder, and so continued till *March the 2d, 1819*, except on two days, (the 1st and 2d of *February*,) on which days, one pint a day was drawn off. From *March the 2d* to *April the 6th*, a tolerably natural quantity of water was voided by the catheter. From *April the 6th* to *May the 30th*, no water flowed into the bladder. The catheter passed once in two or three days, scarcely a tea-spoonful was ever found. Towards the close of this period, however, a new change took place, for, *May the 25th*, a discharge of water came on, by the bowels; and between the 25th and 29th, 16 pints of water were passed. This ceased the day before the next influx into the bladder, which, as before stated, was on *May the 30th*. The discharge of water from

the bladder now continued till *June* the 10th. During this period, ten and a half gallons of water passed, most of which was forced from the bladder by violent spasms. The cessation of flow into the bladder had returned only two days, when the urine again found its way by the rectum, and so continued till *August* the 12th, during which time, seven and a half gallons were voided. An influx now again took place into the bladder, and continuing six days, near eight gallons were drawn off by the urethra, and one and a half gallons passed by the bowels. After the water ceased to flow into the bladder, ten and a half pints again passed by the bowels, five and a half on the 19th, and five on the 20th of *August*, when the retention returned, and no urine passed either way, till on *September* the 8th, she wrote to Mr. HEAVISIDE "That she could not help fearing, from her present sensations, that an influx was again about to take place in the course of a day or two." — *September* 14. Within the last three days, the influx having taken place as she predicted, twenty two quarts were passed from the bladder in occasional spasmodic gushes. — *December* 6. For four days in the last week, she passed two gallons of urine a-day by the rectum, while for the preceding fortnight, not two table-spoonfuls in the whole either passed by the bowels, or reached the bladder.

May 21. 1821. Mr. HEAVISIDE said she remained just the same; sometimes not voiding a quarter of a pint in a fortnight, and then either by the rectum or bladder, three or four gallons in a day.

August 17. 1822. Mr. HEAVISIDE acquainted me the above complaints remained much the same, the general health being perfectly good. Sometimes two gallons of urine a-day were voided by the bowels; and sometimes when the influx had taken place, unless regurgitation occurred, the urine was

obliged to be drawn off, four or eight ounces in the day ; but if the influx happened in the afternoon, and her surgeon was prevented calling the same evening, by the next morning regurgitation had taken place, and not a drop was found in the bladder. This had happened very frequently.

CHAP. II.

ON THE MORBID APPEARANCES OF THE URINE.

SECT. I.

On the Appearance of Blood in the Urine.

70. **R**ECENT hæmorrhage from the urinary passages, however small the quantity of blood lost, may be readily distinguished by its bright or scarlet colour from any other appearance in the urine.

71. Blood passed by the urethra, may be derived either from the kidneys, the ureters, the bladder, or the urethra. Where bleeding proceeds from the kidneys, it most commonly depends on some injury to their internal cavities, from renal calculi lacerating the fine arterial branches. Sudden or violent exercise or exertion, under these circumstances, generally operates as the exciting cause; and this may be the case whether a calculus is situated in the kidney, ureter, bladder, or urethra; wherever the irritation from stone exists in the urinary passages, there will be increased vascularity, and a perpetual risk of hæmorrhage, from the slightest cause.

72. The presence of blood in the urine, however, even where it may be fairly concluded to come from the kidneys, affords no positive proof either of injury from calculi, nor rupture of blood-vessels. In scurvy, when blood has been effused from the exhalent arteries into the cellular membrane, under the skin, and also into the bowels, the capillary vessels in the kidneys have also allowed the blood to escape with the urine; and in these cases I have uniformly found the affection of the kidneys relieved and removed by the same means that restored the constitutional health of the patient.

73. The secreting vessels of the kidneys have, in some instances, been known to pour out red

blood, however, without any direct evidence of the existence of a scorbutic diathesis. A very remarkable example of this hæmorrhagic disposition, is related by Dr. BANYER, in which vast profusions of blood were first evacuated by stool, on the return of the vernal and autumnal equinoxes, regularly for the space of three years, when the tendency left the bowels; and on the return of the period, the kidneys took up the action, and resumed it regularly for two years longer. An extremely curious fact in this case was, that whether the attack fell on the bowels or kidneys, it invariably continued seven days, and then ceased spontaneously. The discharge by the kidneys in the paroxysm was generally blood only, but on one occasion the urine for three days was only coffee-coloured, but afterward for four days longer every discharge resembled an effusion of blood from a vein just opened. * Such cases, however, are rare, and where considerable hæmorrhage is the immediate consequence of some unusual exertion or strain, it most commonly arises from rupture of blood-vessels, whether calculi are present or otherwise. (Case 10. and 11.)

74. It has happened also, though very rarely, that hæmorrhage has taken place from a cancerous or fungous tumor growing from the internal surface of the pelvis of the kidney. A specimen of this disease is preserved in the Museum of the Royal College; the tumor which had produced bloody urine twelve years, is equal in size to a large walnut, and of similar structure to the fungous tumors sometimes met with in the cavity of the bladder. (Case 34.)

75. A discharge of blood perhaps never takes place from the ureters, unless, from the previous irritation of calculi, they have become highly vascular, and then suffered injury; in a healthy state their supply of blood is not such as to furnish the means of notable hæmorrhage; but where the pa-

tient labours under cancerous or fungous disease of the bladder (Case 35. and 36.), or where an enlarged or varicose state of the vessels about the neck of the bladder exists, bleeding may at any time arise.

76. Bleeding from the urethra frequently arises from the passage or lodgment of a calculus; it sometimes takes place from the use of caustic in stricture, from the forcing a passage through a stricture, or the laceration of some part of the canal. (Case 61.) It is not an uncommon occurrence in the inflammatory stage of gonorrhœa, particularly during the violence of chordee; and is generally the first consequence of violent contusion of the parts. (Case 48. and 49.)

77. From the symptoms, it may be generally determined with tolerable precision, from whence the bleeding is derived. Where hæmorrhage proceeds from the kidneys, it is frequently preceded or attended by pain or sense of fulness in the region of the loins, although, if the blood passes by the capillary arteries, this may not always be the case. In those affections where the loins have previously suffered by external violence, there can be no difficulty. Should the preceding history show the probable existence of renal calculi, the appearance of blood will be at once referred to its proper source; and where bleeding takes place from the ureter, in consequence of a stone passing down, attentive consideration of the symptoms will generally remove any doubt. (Case 22.)

78. A diseased state of bladder is always, as far as I have seen, attended by direct symptoms; whatever the complaint may be, pain in the seat of the bladder, and some disturbance to its functions, lead the attention to the part. When, therefore, hæmorrhage is derived from this cavity, the cause may frequently be ascertained, or at least the real seat of the affection pretty accurately determined.

79. Where blood flows from the vessels of the urethra, it may be generally known by the hæmorrhage either coming on, or continuing, independent

of the act or desire of voiding the urine; the blood is also usually pure, and unmixed with the urine; and on standing, forms a coagulum, bearing a just proportion to the serum, as in healthy blood. Now and then, however, these appearances are not to be relied upon, for M. DESAULT observes what I have myself more than once seen, that occasionally, either from a coagulum forming, or from some other cause, blood poured out into the urethra will flow backward into the bladder; it will then induce another set of symptoms, and thus be very apt to mislead the judgment.

80. Blood passed with the urine, if in minute proportion, will merely impart a scarlet blush to the urine; when, however, any quantity has flowed into the bladder, unless voided immediately, it forms a coagulum, and the efforts at expulsion will then fail. In this state of things, the retention of urine is not the least common nor the least serious consequence.

81. In one instance of this kind the bladder was completely filled with blood, by a vessel rupturing into its cavity. The patient, an old East India Director, had been long subject to nephritic complaints. He was attacked with what was at first supposed a retention of urine, and a catheter was repeatedly introduced, but it was suspected it had not passed into the bladder, as no water flowed, although there was manifest tumor in the seat of the bladder. Under this doubt, Mr. HEAVISIDE was sent for from London, who upon feeling the tumor, said he thought it blood; upon introducing the catheter, he was confirmed in his opinion. His patient died the following day, and on examination, the cavity of the bladder was found entirely filled by a very large coagulum of blood, which had evidently flowed from some part of the surface of the diseased inner membrane; for on examining the kidneys, the one was much wasted and extremely small, the other much enlarged, and from obstruction converted into cysts by over distention; but neither

in the kidneys or ureters was there the least trace of effused blood.

82. In another case a gentleman was supposed to have died of an obstruction from inflammation at the neck of the bladder. On opening the body, the kidneys were found studded externally with small yellow cheesy tubercles. The pelvis of one kidney was much enlarged, the ureter having been obstructed below by a great quantity of coagulated blood in the bladder, almost filling it. Some part of the coagulum was very firm, and adhered to the inner surface of the bladder. In the midst of the coagulum was found a stone, of irregular figure, and as large as the top of the thumb. Before death, it had been attempted to introduce a trocar, but the coagulum prevented the urine flowing, although a little dropped away occasionally.*

83. Of a similar description with the above, is an interesting case recently published by Dr. BYRON, in which a very large coagulum of blood deposited in the bladder, was first washed asunder, and then by means of a large silver catheter, and an exhausting syringe, progressively drawn out, until a quantity of fragments of coagulum were collected, to the amount of more than twenty ounces. It is to be lamented that such judicious and persevering exertions should have failed to save the patient, and also that leave could not be obtained for examining the body after death.† A case in which, from gunshot wound of the bladder, that viscus distended with blood and urine, was apparently relieved by passing an elastic catheter, and by the injection of emollient fluids into its cavity, favoring the discharge of coagula of blood, and other contents, and thus removing the alarming symptoms, is mentioned by M. LARREY, as related by M. MARTIN.‡

* From a MS. of Mr. WATSON'S, in Mr. HEAVISIDE'S Museum.

† Dublin Hospital Reports, vol. iii.

‡ Mém. de l'Académie des Sciences. Année, 1725.

84. Many other facts also are before us, to strengthen favorable hope under these circumstances; for Sir E. HOME has shown, that where blood flowing into the bladder mixes with the urine, the whole forms one coagulum, which, if large, may for many weeks suspend the power of voiding the urine, and consequently require the catheter; that in the course of that period, the coagulum suffers change, the flow of urine washing away the red globules, and depositing also a large quantity of a white powder, which continues to appear till the whole of the coagulum is removed; and as this happens, the bladder progressively reassumes the power of expelling its contents, together with the other functions of perfect health.* I have had one case of this description, that terminated extremely well; although the constitutional health rendered the patient but little assistance. (Case 12.)

85. The serious importance of hæmorrhage from the urinary organs, is rarely derived from the quantity of blood lost; it generally consists in its forming an indication of the existence of some particular disease, which is in itself of a serious nature. Where blood in the urine arises from wound either of the kidneys or bladder, unless the flow of blood is very free, the hæmorrhage under proper care may cease, and the patient do well. Where bleeding is dependant on calculous disease either in the kidneys, ureters, or bladder, the importance and probable result may be dependant in some degree on the quantity lost, but much more on circumstances less evident; the exact state and condition of the particular part suffering from irritation, together with the size, form, and composition of the irritating body, or stone. This kind of hæmorrhage, considered as purely the effect of accident, severe horse exercise, or intemperance, loses much of its importance; but viewed as a symptom of confirmed disease of kid-

* Phil. Trans. vol. lxxxvi.

ney, or fungous tumor, or fungous hæmatodes of the bladder, it must excite very serious apprehension for the eventual fate of the patient.

86. The appearance of blood in the urine, as it always indicates some morbid affection either of kidney, ureter, bladder, or urethra, will require only those curative means best calculated to remove or relieve the disease that brought it on; these means will be explained under their proper heads. When, however, blood effused into the bladder in quantity forms a coagulum, it may, and most probably will, be necessary to adopt some means for facilitating its dissolution and removal. The existence of a coagulum may be suspected where the appearance of recent blood in the urine quickly subsides, giving place to a heavy chocolate-coloured sediment, while the irritation and frequent desire to void urine continues. The train of symptoms consequent to this accident, will be entirely dependant on the quantity of the coagulum, the healthy or diseased state of the bladder, and the condition of the kidneys. The presence of a large coagulum seems occasionally to operate, by exciting a peculiar irritation, inducing suspension of the secretion of urine, and thus destroying the patient. Whenever there is ground to suppose a coagulum deposited in the bladder, in connection with uneasiness and irritation, with scarcely any power to void urine, there will be ground for apprehension as to the event, and every reason for activity and exertion, in trying those means by which, without offence to the tender and irritable surface of the cavity of the bladder, we may break down, or in some measure assist in favoring the dissolution and removal of the contained blood.

87. Of the means, calculated to assist in dissolving a coagulum, and enabling it to flow off with the urine, the most safe, and harmless, perhaps, is the injecting into the bladder, by means of a catheter, a quantity of warm water, previously rendered per-

fectly soft, by the addition of a little alkali ; or, as M. DESAULT recommends, water that is slightly alkaline. The longer this can be retained the better. The passing an instrument with a view to break down the coagulum, is another expedient proposed, the usefulness of which, I should think, in some cases, might prove considerable. I should previously examine the bladder from above the pubes, and by the rectum, and then select one of the smallest silver catheters, as being capable of most free motion in the bladder, and, therefore, conferring the greatest degree of the required power. Every movement of the instrument should be conducted with the greatest caution, and the patient being desired to say, when it gives pain, the same exact direction should not a second time be given to the point, especially if there is any suspicion of the bladder itself being unsound. The movements of the catheter may, according to circumstances, be more freely made in one case than in another ; provided these are not painful, the parts may not sustain any injury, or even inconvenience. The smaller instrument withdrawn, the largest silver catheter may now be passed, and probably some urine will flow. Provided the bladder is not painfully distended, some tepid or alkaline water may perhaps be injected with advantage, by the catheter, this will sometimes return, and bring with it broken fragments. If the stream suddenly stops, it is most likely in consequence of coagulum stopping up the openings of the instrument, and this seems to me the favorable moment for assisting our efforts, by adding the carefully applied power of an exhausting syringe, as in Dr. BYRON's case. The application of this power, however, requires, in my opinion, some precaution. In the first place, the piston of the syringe, well oiled, should move with perfect ease, that the operator may accurately know the exact measure of force applied, which ought to be moderate as possible ; in the next

place, as all the risk is that of the coats of the bladder, coming in contact with the eyes of the instrument during the act of exhaustion, care should be taken, that the mind's eye be steadily kept upon the extremity of the instrument, which should be so placed, that its openings may project one or two inches only into the middle of the cavity of the bladder, which, if much distended, will then be in no risk of sustaining injury. (270.)

88. During the time that any part of a coagulum remains in the bladder, should there exist any disposition to calculous deposition in the urine, such coagulum may become the nucleus of a stone. This important circumstance should suggest additional attention, in these cases. In the first place, the history of the complaints should be completely ascertained, to clear up any doubt, as to the present or past existence of any tendency to gravel, or stone; and, in the second place, if it should appear that the patient is or ever has been subject to gravel, the diet should be rendered extremely temperate and simple, and the stomach and bowels be constantly watched; that by the seasonable direction of light bitters, and the continual use of gentle aperients, that peculiar state of indigestion and confinement, which most essentially favors the calculous diathesis, may be prevented.

89. A curious case is mentioned by M. DESAULT, as having occurred to M. ROUX, in which the exact colour of blood continually existed in the urine, without any one being able to understand, or remove it; until M. ROUX, suspecting it could not be blood, questioned more closely, and discovered that the patient supped every night on red beet-root. This laid aside, the urine resumed its healthy colour.

CASE 10.

Renal Hæmorrhage.

January 15. 1821. A robust weak female, aged 68, requested to see me on account of some complaints affecting the bladder. She had been a fortnight confined with a heavy winter cough, for which aperients, antimonials, and other medicines had been directed. On the 12th, sickness and vomiting came on, and pain in the loins followed. The urine next passed was of a deep crimson colour, depositing a rather copious sediment of red blood. The sickness relieved, the appearance of blood in the urine continued, though to no very material extent.

When the uneasiness about the loins became somewhat better, pain in making water came on, and, especially, just as the bladder was emptied; she also observed, that the flow of water was occasionally checked suddenly, as if something stopped up the passage.

January 15. Several small soft masses, of a pale red colour, and about the size of small gooseberries, were observed to have flowed with the urine, from the bladder; these substances appeared to be remnants of macerated coagula. There was no material frequency of desire to void the urine, but there was decided tenderness to pressure about the seat of the bladder.

Appearances, nearly similar to the above, were noticed in the urine upon a former occasion, a year and a half previous to the present attack. They were then attributed to cold, were unattended with local pain or uneasiness, continued a fortnight, and disappeared spontaneously. The present attack, also, declined very favorably; by attention to the bowels, and the exhibition of light tonics, within three weeks the patient had recovered.

CASE 11.

Renal Hæmorrhage, from external violence.

A MAN, aged 67, brought home ill, in *May*, 1820, said he had hurt himself in lifting a porter's load. He complained of pain in his right side. Blood came freely with his urine on the same day, the coagulum formed being equal to one-fourth of the whole quantity of fluid voided. In a few days the bleeding subsided, and did not re-appear till the end of August, when the pain in the loins returned, and fluid, with clotted blood, again flowed with his urine, at least as copiously as at first, and with more distress, from wind at the stomach.

Sept. 6. The renal hæmorrhage still continuing, he complained of much increase of pain in the loins. On the 11th, having taken some broth, he felt sick, and, in half an hour afterwards, threw up a pint of fluid, most of which was blood; the bleeding from the kidneys not then being upon him.

At this time, being requested to visit him, I found the pulse strong, but intermitting. His bowels were regular, but he had not since the accident been able perfectly to retain his water. For the last fortnight he had been dull and stupid, and was now exceedingly disposed to sleep; even when his eyes were open, he could not see a person come into the room with a candle. The tongue was foul. I directed some medicines, which, however, his daughter neglected to give, and the following night he died.

The family would not, by any persuasion or argument, permit the examination of the body.

CASE 12.

Renal Hæmorrhage, and large Coagulum in the Bladder.

Dec. 28. 1818. I was desired to visit a lady, aged 65, alarmed by an appearance in her urine, which, the following day increasing, was evidently blood, a part coagulating at the bottom of the vessel. She complained of a settled pain in the left loin, shooting downwards; which pain had commenced a week before in what was supposed a bilious attack, with vomiting and extreme nervous agitation; most of these symptoms, however, were soon relieved by brisk cathartics.

An appearance, similar to the present, she said, she once had, in the 30th year of her age. It then arose from a playful effort to lift a young lady from a sofa. Blood then came, sometimes freely, for the space of nearly six months, and was of a uniformly bright colour, through the whole attack. Her physicians prescribed various medicines, containing alum, extract and decoction of logwood, and other astringents; but the complaint yielded, at last, to the internal use of recently dried, and finely powdered, peach-leaves. Towards the latter part of that attack she had pain, similar, in kind and situation, to that she now felt, neither producing pain in voiding, or difficulty in retaining her urine. Pulse natural; at 60.

Finding the bowels acted regularly, I directed the Bals. Copaibæ to be taken at regular intervals; which in a few days relieved, and soon removed the complaint. A slight return, a few weeks afterwards, disappeared, upon taking the recent citric acid, in lemonade.

Oct. 24. 1821. I was called up to visit this lady, who, during the night, had passed her water with some pain, in small quantities, and of a florid red colour. The proportion of coagulum, forming about one-sixth of the whole, lay like a filamentous

tuft at the bottom. Bowels and pulse regular. No uneasiness at the loins, and scarcely any soreness or tenderness about the bladder. This attack had followed a greater degree of exertion than common, in walking the preceding day. There was little pain, but so much nervous tremor and agitation, that it was scarcely possible to distinguish the feeble and irregular pulse. The skin, and extremities, were cold. I directed a warm anodyne, with ammonia and camphor, to be frequently given; which, with the aid of external warmth, restored the circulation, relieved the tremors, and removed the sickness at stomach.

Oct. 25. Complained of a severe catching pain in the direction of the right ureter, shooting occasionally up to the loins, and always commencing in an uneasy sensation in the bladder. Voiding the urine excited a smarting in the bladder, and this again, the pain in the side. She thought her old bilious symptoms at hand, still feeling sickness at the stomach, and a numbness extending down the thigh. She was directed first an aperient, and then an anodyne, with occasionally a little lemonade. Pulse very good, at 84. The blood in the urine had, in one small quantity, entirely disappeared; in the subsequent portions it returned, but of a darker colour, progressively deepening; no longer coagulating, but subsiding as a loose sediment, to the bottom. Fomentations to the side much relieved the pain.

Oct. 26. The pains in the course of the ureter, and the uneasiness in the bladder, nearly gone; the deposit of blood in the urine rather more considerable, and of a brownish red colour. Directed a light anodyne.

Oct. 27. The sediment in the urine still darker, its proportion smaller, and its texture a looser powder.

Oct. 28. I examined the urine voided within the last 24 hours. The first portion, passed at 4 P. M., was three and a half ounces, with a pretty free

sediment of the brown powder. The second, at 11 P. M., was three ounces, with much less deposit, hardly tinged. The third, at 4 A. M., was six drachms, with more deposit. The fourth, at noon, was one ounce, with still more deposit. The latter appearances made her extremely uneasy, under the idea that the bleeding had returned; there was, however, no difficulty in explaining them, to her comfort and my own satisfaction, as the natural consequence of moving a little about, by which the remaining part of the coagulum, formed in the bladder, which must have been to the amount of several ounces, was more freely broken down and washed away, with the urine.

Oct. 29. The appearance of blood in the urine finally ceased; and the patient soon after recovered her strength and health.

Feb. 1823. Remained well.

SECT. II.

On the Appearance of Pus in the Urine.

90. THERE can be no doubt of the importance of being able to distinguish purulent matter, when it makes its appearance in the urine. Few questions, however, are occasionally of less easy determination. Of practical writers, some appear desirous to avoid the necessity for laying down distinctions, upon which they cannot themselves rely; while others, less scrupulous, point out modes of discrimination, upon which no dependence, in my opinion, can be placed.

91. It is observed by M. DESAULT, that purulent urine does not, in every case, arise from disease in the urinary organs themselves; for that numberless observations show how readily acute disease establishes its crisis, by the medium of this appearance in the urine. The same author adds, that a great number of facts attest that matter deposited in the

lungs, liver, or any other part of the body, is capable of being carried by metastasis, to the kidneys, and evacuated with the urine. Now I have very often seen critical deposits in the urine, whether from fever or inflammation, but they have invariably consisted either of some variety of albuminous matter, generally of farinaceous appearance, or of a pink sediment, or otherwise of some modification of gravel; and as to the contents of abscesses being occasionally transferred from other parts by metastasis to the kidneys, into the urine, it may be very true, but it is nevertheless what I have never once seen clearly verified. Nothing is more difficult, perhaps, than to determine absolutely, that matter is actually formed, unless it can be examined and felt in the softening of an external tumor; and supposing its existence thus ascertained, and that it is afterwards removed by absorption, the urine throwing down at the time a copious sediment, it by no means follows that this sediment must be pus. In one instance where I had previously opened several abscesses about the knee-joint, another formed beneath the skin as before, and by waiting a little, about three ounces of matter did certainly, within a few days, completely disappear by absorption. It is presumable it was carried back into the circulation; but be that as it may, it was carried away from the knee-joint. I am not however, aware, whether in this case any concomitant change occurred in the appearance of the urine.

92. The doubts just expressed in relation to critical deposits by the urine, apply equally to many of the appearances that originate in irritation of the membrane lining the cavities either of the kidneys, ureters, bladder, or urethra. Where from inflammation, abscess of these parts takes place, and from breaking inwardly, the contents are evacuated with the urine, the matter will of course be, strictly speaking, purulent. In gonorrhœa, also,

I am aware the discharge, without breach of surface, is purulent, because I have seen, as well as others, that under the microscope, it is impossible to distinguish this matter from that of an abscess, the contained globules, as to number, colour, and magnitude, being precisely the same in both cases, that is, nearly similar to those found in the blood. But in most of those complaints in which the urine is clouded, in consequence of some irritation in the kidneys, the substance deposited will be frequently very apt to be mistaken for pus, while in fact, it only resembles it in colour. Examining some such urine very lately, I found the sediment extremely tenacious, of a deep yellow colour, and even consistence, circumscribed, partly suspended in the urine, like a little undulating cloud, and partly attached to the bottom of the vessel. It appeared to me a muco-purulent matter; but on the affusion of a quantity of hot water, the whole became slightly turbid: in a few minutes the fluid cleared, was poured off, and on examining the sediment, which answered to the quantity of the previously existing cloud, it proved to be a fine, dense, beautifully white, flocculent albuminous substance, before disguised, but now destitute of any trace of resemblance to purulent matter. (Case 13.)

93. An instance, in which it is most probable a discharge from the kidneys was partly of a purulent nature, occurred to the late Mr. WATSON. A West Indian three years before, coming to Europe for advice, had fever, in which the high coloured urine deposited a thin whitish matter, but in small quantity. This appearance continued two years and a half; when the sediment became more tenacious, and he was obliged to pass water every ten minutes, with great pain, before and at the time, but none after. Whenever the matter was collected, he felt uneasy till it was discharged. The symptoms, however, varied; sometimes he

could bear a large quantity of this matter to be collected, and discharge it at a long interval, when it was of a pale yellow colour; but when it was green (as it sometimes was green as grass) he was obliged to pass water at very short intervals. The acrimony and colour went together, the irritation being always greater, or less, according to these circumstances. After several months continued pain in the left kidney, added to the above, he visited England, and consulted Mr. WATSON. A course of calomel and sarsaparilla proved too stimulant, and was changed for the blue pill, which seemed useful. The quantity of matter lessened, and the water was passed at the lengthened interval of half an hour. This plan was continued some time, his health, appetite, and rest good; but the frequency of urine undiminished. Opiates always distracted him, and brought on strangury. Two or three times the water became perfectly clear of the sediment. When loaded, the recent urine was of a bluish colour, and turbid, but on standing, deposited its matter in the form of a thick ropy substance. Dr. FOTHERGILL was consulted, and directed the uva ursi, which disagreed, inducing strangury; from which he was relieved by an enema of milk, camphor, and a few drops of laudanum. He was, however, but little benefited permanently, by any thing done.*

94. The opportunities of examining urine in which the matter deposited is, properly speaking, purulent, are generally in cases where the fact is already rendered clear by the other symptoms; and consequently, the determining the nature of the deposit becomes unnecessary. In one very recent instance of this kind, a copious deposit of purulent and coagulated albuminous matter in the urine, occurred in a man in whom there were strong reasons for believing these appearances arose from

* From a MS. of Mr. WATSON's, in Mr. HEAVISIDE's Museum.

purulent disease of kidney. No medicines appeared either to relieve, or to influence the progress of his complaint; from the continuance of which, sinking into colliquative diarrhœa, he at length died. On examination I most unexpectedly found the kidneys and ureters perfectly sound; but an abscess formed within the psoas muscle, connected more intimately by thickening and disease of cellular membrane, to the lateral part of an otherwise healthy bladder, had discharged its contents into the cavity by a small opening, which thus passed off freely with the urine, by the urethra.

95. The importance, however, of not asserting, or admitting, the presence of ulceration in any internal part before it actually exists, is more considerable than may at first be imagined. Any consequence of irritation, any altered action upon a natural surface, it is pretty generally known may often be corrected; but if that natural surface is once broken up by ulceration, the probability of its restoration, or, in other words, the chance of a cure, becomes exceedingly diminished. Now, suppose a patient with irritable bladder, and the appearance of filmy albuminous substances in his urine, is told by a surgeon of high character that there is an ulcer in the bladder, and that those substances are the coatings of the ulcer, he is depressed, but not relieved. But should two other opinions fortunately coincide in considering his complaints derived from irritation only, and capable of being removed, he feels fresh confidence, his spirits improve, his constitution recovers the power of helping itself; and this state of constitution being, in my opinion, very often of more consequence than any medical treatment, it becomes evidently important to the patient's welfare that his case should not be set before him clothed in imaginary terrors; nor indeed should it be placed in any less favourable point of view than known facts will warrant. (Case 28.) There is rarely any necessity for con-

cealing the truth, indeed it may always be made known in proper terms, even when unfavourable; but where the actual circumstances remain conjectural, it appears to me a serious duty to avoid putting a strained construction upon every incident, or symptom; when the only effect can be to give it additional importance by setting it in the most unfavourable light, and the only object an idle affectation of superior discernment.

96. Where a sediment in the urine is actually pus, the more even consistence of the deposit, the manner in which it flows from side to side when the vessel containing it is moved, added to the ordinary colour of purulent matter, will afford some ground for determining upon its nature. In pure pus, the globules will be found under the microscope disposed to diffuse themselves equally in every direction, both before and after the matter is diluted in water. Nitric acid, dropped upon pus, renders the globules apparently somewhat smaller, producing also the appearance of a brownish opacity, but without any immediate disturbance to the even diffusion of the globules through the fluid in which they are contained. Rectified spirit of wine, dropped upon pus, disposes its globules in some degree to run together, partially adhering in clusters; the same effect is also produced by a drop of boiling water. These appearances do not occur in the modifications of albuminous matter. (107.)

97. With regard either to the general principle, or particular circumstances of the necessary treatment, upon the detection of purulent matter in the urine, it must be in every case entirely regulated by the seat and tendency of the complaint of which it forms an indication, and will therefore be referred to the particular heads under which it may be observed.

SECT. III.

On the Appearance of Albuminous Matter in the Urine.

98. ALBUMINOUS matter very frequently occurs in the urine; often indeed under circumstances that prevent its detection, unless by chemical analysis. The following remarks, however, are intended principally to apply to this substance, when from its existence in some peculiar state or degree of coagulation, it is observable as a sediment in the urine.

99. The most frequent and least important cause of this appearance is the occasional effect of common cold, in which, after a sense of weight and irksome uneasiness about the loins, the urine is voided turbid, but on standing deposits a greater or less quantity of fine whitish-coloured flocculent matter, not very much exceeding in specific gravity the fluid in which it slowly subsides; generally disappearing in the course of a few days.

100. Analogous to this appearance, is that which is observable upon the crisis of feverish indisposition. In these affections the sediment is generally tinged more or less decidedly either of a pink, or a dull red colour; the principal seat of irritation, in all these cases, I believe to be the mucous membrane lining the cavities of the kidneys.

101. An attack of gout is commonly productive of some disturbance to the circulation through the kidneys, being attended with a flocculent pink coloured albuminous deposit in the urine. It also occasionally happens, that from some accidental circumstance, the gouty action is in a more direct manner transferred to the kidneys, and the consequence is more considerable disturbance, or a complete suspension of their functions. (15.)

102. In one such instance, a young man afflicted with gout, is stated by Mr. WATSON to have had uneasiness in the loins, pain in the bladder, and some difficulty in making water. The urine be-

came thick, with a white viscid sediment; sometimes rendered very copiously, and with great pain. The sediment was often one-fourth the quantity of urine. After twelve days a remittent fever came on, and this continued forty days, reducing him to the lowest ebb. Bleedings, diluents, sedatives, and laxatives, were directed to no purpose; although eventually, nature alone conquered the disease. *

103. In another instance of this kind, a man labouring under gout in the foot, was obliged suddenly to remove the furniture out of a kitchen, almost knee deep in water; the gout directly left his foot, and with pain in his loins, so abundant an excretion of albuminous matter came away with his urine, that it threatened to prevent the passage through the urethra altogether: and in fact he became very soon dependent on the catheter, as from irritation at the neck of the bladder, retention of urine supervened. This was considered an instance of metastasis of gout to the bladder; but seemed to me rather an example of gout transferred to the kidneys, and the induced irritation of bladder was perhaps no sufficient warrant for a different conclusion: for if these complaints are observed with attention, it will be not unfrequently found that albuminous matter secreted by the kidneys, reaching the bladder, and from its superior specific gravity subsiding down towards the orifice of the urethra, excites a very sensible increase of irritation and distress, until the bladder, by the expulsion of its contents, obtains some interval of comparative repose. (93.) and (Case 13.) Neither is this fact of difficult explanation, as it has been shown by Dr. PEARSON, that the varieties of mucous secretions in expectorated matter differ exceedingly with regard to the proportionate quantity of potash, and soda, they contain; and that those kinds previously observed to have most power of exciting irritation,

* From Mr. WATSON'S MS. in Mr. HEAVISIDE'S Museum.

are the same now ascertained to abound most particularly in the alkaline salts. *

104. Upon this principle, perhaps, I was enabled to relieve the complaints of a middle-aged gentleman who visited me, from Aberdeen, in *May* 1817. Apparently robust, he had long been subject, without any known cause, to a discharge of yellowish white albuminous flocculi and shreds, sometimes with minute particles of red blood, in his urine; and sense of uneasiness or pain in his loins, and about the neck of the bladder. On examination, I found this matter sometimes very nearly resembled pus; but it was pretty evident, on slowly pouring off the fluid, that the varying state of the sediment was dependant only on the coarser or finer appearance of the flocculi. Aperients, opiates, conium, and other medicines were tried, but nothing succeeded near so well as the recent citric acid, half an ounce every six hours. It greatly relieved the habitual pain at the loins, extending the interval of voiding urine from two to eight hours, and so diminishing the deposit, that the only remaining appearance in the urine was that of a little fine substance like hair-powder. This medicine, after being continued two or three weeks, was laid aside, as the improvement ceased to advance; and there was reason to apprehend its further use might have been prejudicial. This gentleman left town in the following *August* for Southampton; and I had the pleasure of hearing, in 1822, that his health was much improved, and his old complaint nearly gone. Not unfrequently, albuminous deposits very similar to the above, are consequent either to injury of the kidney, by external violence; or to injury of its functions, from impaired nervous influence, as happens in paralytic affections. (Case 14.)

105. Deposits nearly similar to those just men-

* Phil. Trans. 1809.

tioned, are occasionally observed in the urine, from temporary irritation at the neck of the bladder; where there is every reason to believe that the membrane lining that cavity, continuous with that which invests the internal parts of the kidneys, possesses a similar power of secreting albuminous matter, variously modified as to appearance, composition, and tendency to coagulate. All that we can be said to know, however, upon the subject, is, that the same set of exhalent arteries which in health secrete only a limpid mucus, do occasionally effuse, under the influence of disease, coagulable lymph, or albuminous matter, so as to form either an even and compact coating firmly attached to the surface of the cavity of the bladder; or small and more loosely attached fibrous or membranous patches; or viscid tenacious yellow, white, or variously coloured matters, not attached at all, but subsiding in the urine; or sometimes again, small and almost transparent clouds, which being of the same specific gravity with the urine, neither fall to the bottom, nor rise to the top, but exhibit themselves suspended in the midst. (Case 8.)

106. A transparent and extremely viscid albuminous substance also occurs in the urine, not derived from affection of bladder, but from enlargement of prostate gland. According to my experience, in the former case, this appearance of transparent matter has been only occasional and transitory, furnished in small quantity, not perfectly pellucid, of low specific gravity, and not very tenacious; in the latter it is, on the contrary, a permanent appearance, furnished in much larger quantity, beautifully transparent, of high specific gravity, and so tenacious as to admit of being raised in threads several feet in length. M. DESAULT considers that “*Les urines glaireuses sont un symptôme propre aux affections de la vessie.*” A conclusion which I believe to be at variance with the general results of English practice; it may, how-

ever, perhaps, be explained by taking into account the difference of climate and modes of life in France and England; circumstances calculated to qualify the state of constitution, and influence the appearances of disease, as well as the functions of health.

107. Though its appearance may be extremely various, the characters of albuminous matter are in most cases so different from those of pus, as to render the distinction sufficiently obvious. The characters of healthy pus, already given (96.), will commonly enable the attentive observer to determine, with tolerable precision, whether a sediment in the urine is purulent, or albuminous. The albuminous matter deposited in the urine (Case 13.), was found under the microscope to resemble pus, in being made up of globules; but they differed from that fluid, in being prone to unite in clusters, instead of floating in a state of even diffusion. The addition of a drop of nitric acid rendered them not only more opake, but made them run still more forcibly together into parcels and clusters; the latter effect not being observed in pus. Rectified spirit of wine somewhat increased the opacity of these albuminous globules, producing the appearance of numerous short portions of lines. But although the magnifying power was considerable, it did not appear, viewed either by reflected or transmitted light, that these lines were formed by adherent globules; at least, I could perceive no trace of regular indentations, nor any the least opacity, where it might have been expected, in the points of union between the globules. One argument which, in my mind, favoured such a conjecture, was, that at first the diameter of these lines, and that of a globule, appeared to be about equal; this, however, failed, upon finding some that were equal to at least three or four diameters, instead of one. The affusion of boiling water converted this albuminous matter from a semi-transparent, yellow, vis-

cid, and tenacious mass, to an opaque, white, flocculent substance in fine flakes, exhibiting the appearance of coagulation; which change, under the microscope, seemed to consist in little else than a strong disposition in the globules to attract each other into masses and clusters.

108. With regard to the treatment of diseases that manifest themselves by albuminous deposits in the urine, there still remains much to learn. These appearances are, in fact, derived from so great a variety of sources, and are in so many instances secondary consequences only, as rarely to claim the attention due to primary complaints; when, however, this attention is called for, it must be paid by a diligent enquiry into the history; from the circumstances of which it will generally appear that the membrane lining the internal parts of the kidney is probably labouring under some irritation, independent of ulceration, or calculous tendency. Under these circumstances, I have occasionally found various medicines useful, although it is extremely difficult to lay down any general rule for their application. In one instance, opiates and other anodynes were sometimes conducive to comfort, but the most powerful and permanent relief was derived from the recently expressed juice of the lemon. (104.) In other instances, no medicines have appeared to me capable of making any decided impression. Tonics, in general, I am inclined to believe, are among the most useful means. Preparations of steel, particularly the muriated tincture, have obtained, in these complaints, a very high character with some excellent practitioners, particularly with Dr. HOOPER; and I have certainly sometimes, though not often, directed them with advantage.

CASE 13.

Albuminous Matter in the Urine, from Irritation in the Kidneys.

A MAN aged 56, subject many years to occasional uneasiness at the loins, with pain, and desire to

pass water, applied to me in *August* 1822. The urine was to appearance healthy, but the urgency to pass it, if not instantly attended to, would either deprive him of the power of retaining it a single minute, or sometimes prevent, for a short time, his voiding any. He supposed these attacks of irritation, rarely continuing longer than a day, might arise from gravel, but he never saw any.

About a twelvemonth since, he had strained his loins violently, from which accident his back directly became painful, and, in a few days, his urine thick, depositing a whitish sediment. When pain increased in the loins, he always knew more sediment was at hand; he felt painful uneasiness extend down into the bladder, feeling less in the loins as he experienced more in the bladder, till at length, sometimes with exceeding pain, straining, and distress, he forced out the matter and "stuff," with his urine, and became at once easier. These complaints had remained to the present time, and for many months past, the uneasiness at his loins had been continual, and most distressing when lying down; so that sometimes, awoke from sleep, he was unable to remain in bed. He could not lay well on his right side, but for a few minutes; though he thought the left side of his loins the worst. He never had pain or numbness in the thighs, or testes; only at the loins, and thence to the bladder. A full-sized bougie passed freely into the bladder. The secretion of urine was natural in colour and quantity, but with it a whitish yellow, extremely viscid, albuminous matter was voided, mostly in the morning; the passing of which, was now, as formerly, preceded by more pain, and productive of more ease. The Bals. Copaibæ was directed in various ways for his relief, and persevered in for near a month, without benefit. The compound powder of ipecacuanha and other opiates also did no material good; but a medicine, directed by Mr. HEAVISIDE, containing nitrous

æther, and camphorated tincture of opium, of each a drachm, in a draught, taken night and morning, he thought gave him most relief.

September 17. 1822. I examined the albuminous deposit under the microscope, the appearances of which have been pointed out in a former part of these observations. (107.)

October 20. A blister kept open for a fortnight upon the loins, very nearly removed the complaint, permanently diminishing the deposit in the urine to one-tenth its former quantity, and relieving the other symptoms in the same proportion.

CASE 14.

Albuminous Matter in the Urine, from Paralytic Affection of the Kidneys.

June 1819. A thin woman, aged 43, lost her speech, and use of her right side and extremities, by an attack of paralysis. For her relief she was directed to take physic and visit the country, where she partially, and very slowly recovered.

March 1820. She complained of an acute and severe pain in the loins, particularly on the left side. This pain progressively increased, especially under exercise, when she found herself incapable of retaining her water. When the pain commenced in the loins, her urine turbid, deposited a sediment, which, variable in degree, had continued ever since.

The severity of pain about the small of the back generally came on in attacks of several days duration; and then for a week or ten days the pain in the loins, and the sediment in the urine, would diminish.

April 7. 1821. For the last three or four months, very infirm, she had been confined to her bed, and subject to much pain in the bladder, which was tender and painful on pressure, with an irksome sense of bearing down, and a constant desire to void the urine (now very thick) in small quantities.

April 21. The urine on inspection appeared to be freely secreted, and of healthy colour, but contained a considerable quantity of fine albuminous matter, which fell to the bottom, like hair-powder. The bowels very regular, the limbs extremely weak, and the head very painful: with a view to alleviate her sufferings, I directed twelve leeches to the temples.

May 12. The leeches had for some days much relieved the head, without the least apparent effect upon the kidneys; I therefore directed them to be repeated.

May 15. The last leeches had not only greatly and permanently relieved the headach, but with it the pain in the loins, the frequency in making water, and the pain in voiding it. She had before been disturbed every half hour through the night to pass urine, but was now awake only two or three times during that period. The pain in passing it, before extreme, was now much diminished; the quantity of sediment also, in the urine, was much less than before.

July 4. The pain and distress in the loins and bladder remained better; but a large slough forming on the sacrum, required the adoption of the usual means, and a proper course of medical treatment. For some time, she promised every improvement, but soon after her appetite fell off, she sunk, and died; but owing to the interference of a person whose influence I was not at the moment exactly aware of, I was prevented hearing of the event in time to admit of making any examination.

SECT. IV.

On the Appearance of Gravel, in the Urine.

109. THE morbid appearances already noticed in the urine, blood, pus, or albuminous matters, may occur either as the consequence of accident, or the

effect of disease. Other sediments, however, are also observed in the urine; which sediments, although liable to be produced from similar causes, differ in their origin and nature from the above. The former indicate, most frequently, either irritation or disease of some internal surface or cavity through which the urine flows; while the latter demonstrate some derangement in the functions of the secreting vessels of the kidneys, probably connected with imperfect assimilation of some of the principles of the blood.

110. For the present comparatively advanced state of our knowledge upon the subject of urinary concretions, we are principally indebted to the successive labours of Dr. WOLLASTON, Mr. BRANDE, Dr. MARCET, and Dr. PROUT; although it must be confessed, that with relation to the causes, symptoms, and treatment of several known varieties of calculi, our information still remains extremely imperfect.

111. The sediments in the urine, indicating the existence of a calculous diathesis, are observed to be of two kinds; occurring either in the state of fine impalpable powder, or in more or less perfectly crystallized particles or grains. These substances rarely appear alone, most commonly being mingled with mucous matters deposited at the same time, in consequence of irritation, either in the bladder or elsewhere.

112. One of the most frequent forms of the calculous diathesis, is that in which either a red coloured precipitate, in fine powder, is deposited as the urine cools; or a number of distinct, red, semi-transparent crystals, of nearly pure uric acid, are found in the urine. These crystals, when the excess of uric acid is strongly marked, I have repeatedly seen abundantly formed in the bladder, and passed with the urine; generally, however, the recent urine is clear, the crystals forming upon the

bottom and sides of the glass, in the course of the next twenty-four hours.

113. Under some circumstances, an excess of lithic acid may exist in the urine, producing irritation at the neck of the bladder, an occasional sudden and urgent desire to pass water, a momentary want of power of retention, and especially leaving a very peculiar and dull coloured red stain upon the linen, unattended for a time with any distinct precipitation of this substance in the bottom of the vessel. (Case 19.)

114. Where a deposit in the urine is a yellowish brown powder, Dr. PROUT, whose researches upon this subject have been laborious and successful, finds it to consist essentially of lithate of ammonia, tinged with the colouring principle of the urine, usually containing more or less of the phosphates, and sometimes a little of the lithate of soda. These sediments, however, although sometimes alternating with a deposit of gravel, so frequently occur from slight causes, as rarely to portend any material deviation from health.

115. When the colour of the deposit tends to a deep red or brown, it is found to consist essentially of lithate of ammonia, or lithate of soda, tinged with a large proportion of the colouring principle of urine, and more or less of the purpurates of ammonia and soda, sometimes with a small proportion of the earthy phosphates. Deposits of this kind denote active and inflammatory fever, or gouty action; and the deeper the colour of the urine and of the sediment, the more severe, in general, are the attendant symptoms. Where the feverish symptoms are connected with gout, Dr. PROUT has ascertained that the sediments consist chiefly of the lithate of soda, the tinging substance appearing to be purpurate of soda.

116. Sediments of a pink colour, consisting essentially, like the other varieties, of lithate of ammonia, differ from them in being almost entirely devoid of

the yellow tint derived from the colouring matter of the urine; indicating the absence of the large proportion of the colouring principle of the urine, they denote the secretion of a greater quantity of nitric acid, and the consequent formation of more of the purpurate of ammonia. These sediments occur in dropsical, hectic, and visceral diseases.

117. With regard to the source of the excess of lithic acid, when that substance forms crystals of gravel in the urine, there is some variation in opinion. Professors **BRANDE** and **BERZELIUS** do not appear in their experiments to have had any reason to think the lithic acid does exist in combination with ammonia. Dr. **PROUT**, on the contrary, has strong reasons for believing, that the kidneys naturally secrete lithate of ammonia, and that sometimes a free acid also generated in the kidneys, by combining with the ammonia, precipitates the lithic acid in the state in which we see it; a view which does not necessarily imply any excess in the secretion of this principle. All, however, agree, that lithic acid in a free state forms one of the constituents of healthy urine: and the determination of the doubt is, perhaps, of but little practical importance; as the principle of treatment for the relief of the complaints to which the appearance of the lithic acid in the urine gives rise, remains much the same in either case.

118. With regard to the causes of this complaint, it may be observed, that any irregularity or excess in diet, a paroxysm of fever, excessive exercise of body or mind, or any other circumstances that induce debility, will occasionally bring it on.

119. If it be true, that all these various causes may operate upon some one common principle, their agency would appear to be derived from impaired energy in the functions of digestion and assimilation; and from what I have seen of these diseases, I am disposed to think, that in the great majority of cases, this opinion is founded in truth.

In some instances, however, I cannot resist the belief, that temporary disturbance of the circulation through the kidneys, from fatigue in travelling, may derange the functions of these organs without the intervention of any affection of stomach or bowels. (Case 25.)

120. The symptoms I have commonly seen attend these deposits, either in the state of powder, or of gravel, have been more or less constant uneasiness, or considerable pain in the loins, sometimes with feverish heat, thirst, and quick pulse, generally a degree of irritation at the neck of the bladder, and now and then an occasional sudden necessity to void urine, with a transitory loss of power to retain it. (Case 18.) Where uric gravel is deposited in quantity, there is generally also a manifest decrease in the quantity of urine, which may in some instances go on to produce complete suppression. (Case 3.)

121. Where these sediments occur in the state of fine powder, Dr. PROUT considers the lighter coloured, and the pink, as the worst appearances; the former denoting, in general, a tendency to the phosphates; the latter indicating some organic or other deep-seated disease.

122. In what relates to the treatment of the lithic acid diathesis, whether the sediments be uncrystallized or amorphous, or whether they contain distinct crystals of lithic acid, one of the first principles is the proper regulation of the diet, and a strict regard to temperance.

123. The occurrence of the first-mentioned variety of uncrystallized or amorphous sediment (111.), will, as Dr. PROUT observes, exhibit scarcely the least disturbance in the health, requiring little attention as regards medical treatment, although, from its manifesting a strong tendency to the lithic acid diathesis, it will need restriction and care in diet and exercise. Moderation in the quantity of food taken is of the first importance, but it

is, nevertheless, with some patients a precept, the due observance of which it is extremely difficult to enforce. (Case 25.)

124. Plain roast and boiled meats, with fresh vegetables, are unexceptionable; but the free use of pastry, especially hard and coarse dumplings, or badly fermented flour in any form, are found, by Mr. BRANDE and Dr. PROUT, to produce an increase in the complaint, and an immediate aggravation of every symptom.

125. Fruits, and wines, if acescent, are bad, and should be carefully avoided; but the observance of a regular, moderate, and easily digestible diet, the taking proper exercise, and especially the keeping up a regular and free action of the bowels, will, in most cases, include every necessary attention.

Observation, however, has repeatedly led me to the same conclusion with Dr. MARCET, who is inclined to consider the great tendency to acidity in calculous complaints rather in the light of a dyspeptic affection, arising from irritation in the urinary organs, with which the stomach is known to sympathise, than as the original cause of calculous disorders. (29.)

A female, at present under my care, long subject to this complaint, has remarked, that although, in general, the quantity of her urine is large, yet, if ever she takes a glass of stale porter, the bowels presently become tense and inflated, the habitual distress about the loins much aggravated, the urine loaded with mucous matter, and secreted very sparingly, or scarcely at all, for a few days, till by castor-oil the bowels are opened, and she is relieved. (Case 22.) Upon this point it has been remarked by Mr. SPILSBURY, that, in country practice, it is not very uncommon for a man in the decline of life, after a debauch of hard ale, to send to have his urine drawn off, saying, his bladder is full, and he can make none; in great pain, with flushed face, foul tongue, urgent calls, tense and tumid belly, yet

no circumscribed tumor. On passing the catheter, the bladder is found absolutely empty; but, upon bleeding, purging, and restricting the diet, the secretion returns, and the complaint subsides.

126. A very pale-coloured sediment, if induced by the slightest cause, is considered by Dr. PROUT an unfavourable appearance, from its denoting a feverish irritability of system, bordering on that which accompanies the phosphates. The treatment appropriate to this kind of deposit will be presently mentioned; that of the other varieties of amorphous sediments, usually indicating some degree of febrile action, must be regulated by the turn of the symptoms, and the particular disposition of the disease.

127. The preventing the continuance of a deposit of crystallized lithic gravel in the urine, is observed by Dr. PROUT* to be commonly a work of some difficulty. With a view to this object, the regulations already laid down with regard to diet should be most strictly attended to; in addition to which, occasional aperients, combined or alternating with the use of the alkalies, either the carbonate of soda, or of magnesia, may be directed, according to circumstances. This plan, subject to occasional variation, must be followed up with patience and perseverance, being carried forward for some time after the disappearance of the symptoms.

128. Should constitutional irritation prevail, the preparations of opium, or hyoscyamus, may be directed with advantage. Where, however, gouty or inflammatory action takes place, the acetum colchici, has been, by some practitioners, recommended; but, in affording present alleviation to the symptoms for which it has been directed, I am of opinion, that it generally, sooner or later, injures the constitution, and is a deceitful and dangerous remedy that should never be employed.

* Inquiry into the Nature and Treatment of Gravel and Calculus.

129. Where the attack is violent, and attended with feverish symptoms, the treatment must be active. Dr. HOOPER judiciously observes, that sometimes an inflammatory tendency may require fomentations, the local abstraction of blood, and other antiphlogistic measures. * Cupping-glasses, or leeches, may be applied to the loins, and the warm-bath used, while the bowels are gently opened. Dr. PROUT remarks, that if, after such means as these, diuretic purges and the acetum colchici are properly directed, they will seldom fail to remove inflammatory or spasmodic action of the kidney, and produce a flow of urine; and if the attack has been taken in time, the formation of a calculus in the kidney will be thus certainly prevented, or, if formed, will be very small, and scarcely ever fail to be brought away without the distressing feelings usually attendant on the descent of a calculus through the ureter.

130. As an auxiliary remedy in the treatment of this complaint, Dr. HENRY, of Manchester, proposes a medicine, composed of turpentine and opium, as capable of producing a plentiful discharge of lithic acid; and Dr. MARCET observes, that, from the known stimulating power of oil of turpentine on the urinary organs, it is not improbable that it would produce analogous effects in the other species of calculous disorders. To determine, however, the value of the remedy, it appears first necessary to enquire, whether the increased discharge of lithic matter is an indication of the morbid action being soon exhausted, or whether it is merely the consequence of additional excitement to wrong action in a part, the functions of which are already disturbed. Were the first of these views correct, the remedy might indeed be valuable; but should the second be the fact, this medicine would only operate by enabling the kid-

* Medical Dictionary, 4th edition.

neys to secrete a larger quantity of lithic acid, in a given space of time, than they did before.

131. In addition to the above means, I have also, at the onset of the attack, directly after the local blood-letting, laid a blister with much advantage upon the loins, ordering it to be kept open; a measure which I have more than once found arrest immediately the progress of the complaint, and very soon cure it, after the failure of other treatment. (Cases 17. and 19.)

132. The functions of the skin have so much influence upon the lithic diathesis, that while the body is exposed to profuse sweating, the quantity of lithic acid in the urine is considerably diminished; and the urine first discharged in the morning, however highly it be concocted, contains less acid than that secreted during the day. Hence the propriety of warm clothing in these complaints.

133. In the phosphatic diathesis, Dr. PROUT considers that the sediments, if amorphous, are invariably mixtures of phosphate of lime, and the triple phosphate of magnesia and ammonia. Great irritability of system, derangement in the chylopoietic viscera, flatulence, costiveness, or diarrhoea, with black, clay-coloured, or yeasty stools, in connection with uneasiness or pain in the back, generally attend these complaints. The urine is invariably pale, frequently in greater quantity than natural, and, occasionally, of as low specific gravity as 1.002, or even 1.001; sometimes the urine, diminished in quantity, is of higher specific gravity. In the former case, it is pellucid, colourless, and without sediment; in the latter, it may be opaque when passed, and, after standing, may deposit a most copious precipitate of the mixed phosphates. The urine extremely prone to decomposition, becomes alkaline by the evolution of ammonia, emitting a most disgusting smell.

134. In their progress, these complaints, Dr. PROUT observes, generally connect themselves with

constitutional indications of the most extreme debility ; and, in this state, seem capable of ending fatally.

135. With regard to the causes of these diseases, most writers agree, that they very generally originate in some strain, or other injury, of the back. Dr. PROUT says, he has frequently observed jaded and worn-out horses pass great quantities of lime in their urine ; and has remarked the same thing in dogs, particularly the sporting kinds. Dr. PEARSON also mentions instances in which large quantities of carbonate of lime were found in the urinary bladder of the horse* ; and Mr. BRANDE states an instance in which the bladder of a horse was found nearly full of sand, composed of phosphate and carbonate of lime ; and in the ox, the sheep, the rabbit, and the hog, were also found calculi, containing a large proportion of carbonate of lime ; the same substance being detected as one of the principal constituents in the turbid urine of the rhinoceros.†

136. In some instances, the formation of these deposits appears to be favoured, if not induced, by any continued mental fatigue or anxiety, or other cause of constitutional debility. Any protracted irritation, either in or near the urethra, or bladder, frequently operates as an exciting cause, especially any foreign body introduced into the bladder, and remaining there (Case 59.) ; and, upon the same principle, sediments of this kind very commonly appear in the advanced stages of strictures in the urethra, and in diseases of the prostate gland, or bladder. In Mr. HEAVISIDE'S Museum is a portion of a bougie, which, having slipped accidentally into the bladder, became incrustated with a deposit of the phosphates, exciting so much irritation as to require the performance of an operation for its extraction ; in the same collection is also the sec-

* Phil. Trans. 1798.

† Phil. Trans. 1808.

tion of a calculus from the female bladder, composed of the phosphates, and having a hazel nut for its nucleus.

137. The crystallized sediments are, according to Dr. PROUT, almost invariably composed of the triple phosphate of magnesia and ammonia, forming white shining crystals, and constituting a form of disease, milder in its characters and symptoms than that producing the amorphous sediments with which it may alternate. The pale urine in this case, frequently exhibits, on standing, an iridescent crystalline pellicle, small crystals also attaching themselves to the sides of the vessel.

138. Where these salts abound, the urine is of high specific gravity, contains much urea, and is prone to rapid decomposition. Sometimes, as in the excess of lithic acid, the crystalline deposit is formed before the urine is discharged from the bladder; most commonly it makes its appearance as the urine cools; but occasionally not till putrefaction takes place.

139. With regard to the causes, in addition to those already mentioned (135.), Dr. PROUT adverts to the opinion, that the continued use of alkaline medicines may produce a tendency to excess and deposition of the phosphates; but observes, that he has scarcely pushed those remedies so far himself as to witness such effects. Mr. BRANDE, however, is of opinion, that these consequences of the exhibition of the alkalies do occur*; and I think I have seen the phosphatic diathesis favored under the use of alkalies, to remove excess of lithic acid in the urine, although it was perhaps not easy to determine whether this change was the effect of the medicines, or the unrestrained course of the disease.

140. In the treatment of the phosphatic diathesis, the irritability of the system must, as far as

* Phil. Trans. 1808.

possible, be relieved, and the general, as well as local health restored, by tonic and other medicines.

141. In severe cases, Dr. PROUT observes, the only valuable means for relieving the extreme irritability, is opium, in large and frequent doses; the pil. Saponis c. Opio, five, ten, or fifteen grains, twice in the day, is very convenient and useful. Sometimes, according to circumstances, these medicines may be combined with mineral acids, bark, uva ursi, steel, or other tonics; or where the mineral acids disagree, the citric acid may be substituted. In one very distressing case of this kind, where other remedies disagreed or failed, I derived the greatest advantage from the exhibition of the carbonic acid (Case 88.); and Mr. BRANDE mentions a patient, who had a large calculus extracted from the bladder, composed entirely of the phosphates, and whose stomach did not admit of the use of stronger acids, to whom carbonic acid was given in water. It was found peculiarly grateful to the stomach, and upon examining the urine during its use, the phosphates were only voided in solution, but when at any time it was left off, they were passed in the form of white sand.*

142. The management of the bowels, the functions of which are always deranged, will frequently require caution; for although generally prone to confinement, Dr. PROUT says he has seen the most serious consequences arise from a small dose of calomel, which, by inducing diarrhœa, and consequent debility, so much aggravated the symptoms as to endanger the life of the patient. Many other authors, however, have observed, that the effect of brisk purgatives is sometimes particularly favorable, although their use requires discrimination; remarks that must have been verified by the experience of most practitioners.

143. As a general rule, Dr. PROUT considers,

* Phil. Trans. 1810.

that in these complaints, castor oil, as one of the least stimulating, is one of the best aperient remedies ; although in the diseases of children, in which the triple phosphate is copiously deposited, repeated purgative doses of calomel and rhubarb are of the utmost advantage.

144. An unusual and curious instance is related by Dr. PROUT, in which a white earthy matter, and also small calculi, were discharged with the urine ; both substances proving to consist almost entirely of carbonate of lime. To me, at least, the fact appears highly interesting, having met with several instances in which the cavities, functions, and structure of the kidney, have been choaked up and destroyed by the progressive accumulation of a similar matter, without having before found any very distinct statement as to the occurrence either of gravel or calculi in the human subject, in which this substance has formed any very notable constituent. (62.)

145. A very interesting question connected with this subject, regards the manner in which one morbid secretion is, as it were, laid aside, while another is taken up ; constituting what Dr. PROUT has very aptly named, the "transition state" from one diathesis to another.

Where, for instance, the lithic subsides into the phosphatic diathesis, the first change in the urine is an increase in quantity, a more pale colour, and a tendency to deposit pale amorphous sediments, mingled with the phosphates. As the change proceeds, the urine may perhaps be observed to form the iridescent pellicle (137.) ; if at rest, it soon putrefies, assuming a yellowish opaque colour, and frequently containing large spicular crystals of the triple phosphate. A calculus, extracted from the bladder during this change, was found covered externally with pale colored lithate of ammonia, nearly pure.

146. These appearances occur in sickly children,

and also in adults, particularly in irritable habits, and in those subject to lithic deposits. Every constitutional affection is of an irritable kind. As regards the tendency and importance of this stage of change, Dr. PROUT thinks it may be checked by the judicious use of the means for relieving it, provided the exciting causes are removed; for otherwise the phosphatic diathesis will eventually come forward, especially if there be already a stone in the bladder.

147. In the second stage of change the urine becomes of a still more pale colour, and is more decidedly alkaline. The lithate of ammonia diminishes or disappears, while the phosphates, particularly the triple phosphate, are increased, until at length the phosphatic diathesis is completely established. Dr. PROUT has laid down a valuable practical rule under this head, stating, that where the lithate of ammonia is deposited in large quantities with the phosphates, hyoscyamus rather than opium is to be preferred, as opium seems frequently to increase the formation of lithic acid. Another interesting conclusion to which the active spirit of enquiry in the present day has led, is, that a decided deposition of the mixed phosphates is not followed by other depositions.

148. Gravel or sand, composed of oxalate of lime, has been very rarely seen. Mr. BRANDE states, that in this diathesis little or no gravel is voided. A case is indeed mentioned, in which a man, aged 62, had some years before had slight symptoms of a renal calculus passing down into the bladder, and after two years' distress from symptoms of stone, a mulberry calculus, the size of a nutmeg, was removed by the operation. He had voided no sand, and his urine always appeared clear.*

149. With regard to the management of this diathesis, Dr. PROUT is led to conclude, as well from

* Journal of the Royal Institution, vol. viii.

the dissection of calculi, showing that the oxalate of lime diathesis is both preceded and followed by the lithic acid diathesis, as from other circumstances, there is reason to believe both these diatheses are of the same general nature, and that, consequently, they will both require a mode of treatment founded upon one and the same general principle. (123.)

CASE 15.

Deposit of Uric Acid, with the Phosphates, from a Strain.

A HEALTHY man, 58 years of age, fell with a ladder from a waggon, *September 1. 1819*, severely straining the loins. He complained of great pain at the small of the back, and by the next day, though tormented with constant desire, was only able to void his urine by drops, with pain and straining.

September 3. Desire to pass water still more urgent ; urine depositing a dense cloud of a red-coloured sand, a reddish-coloured substance of gelatinous appearance, and some few particles of whitish-coloured gravel, detected by the finger.

September 4. I was first requested to see him, and finding the general health undisturbed, desired he would remain quiet in bed, and take on that, and the following evening, an anodyne draught.

September 6. Infinitely better, and able to retain his urine with more comfort for two hours, than he could three days before for ten minutes. The water, now clear, exhibiting no trace of calculous or other deposit, passed in a free stream.

In the course of a fortnight more, under the above plan, he perfectly recovered.

CASE 16.

Deposition of Uric Gravel in the Urine.

A WOMAN, aged 40, consulted me, *July 19. 1819*, for severe pains in the loins and back, with occasional, and sometimes copious deposits of gravel in

her urine ; to which complaints she had been subject some years. Finding, on examination, the sediment was principally a red sand, I directed ten drops of the *Liquor Potassæ* two or three times a day, for a week. This plan affording little relief, it was given up, and she was put upon a course of gentle purgatives for three weeks, at the end of which period her health was very essentially improved.

The deposit in the urine now scarcely perceptible, and that only rarely ; the pains in the loins entirely gone. She was, however, advised to continue her medicines for some time longer, to ensure her remaining well.

CASE 17.

Deposition of Uric Acid, and the Phosphates, most effectually treated by Blistering.

A STOUT woman, aged 61, applied to me in *June* 1821, for a complaint in the loins. For many months, her urine becoming thick, she had been distressed by a sense of weight and occasional forcing pains about the bladder, most severe in passing water. More than once, after these pains, her water contained small fragments of coagulated blood, producing an appearance of little red streaks, when the urine was poured off. The frequency of passing water was generally three or four times in an hour. The attack commenced with severe pain at the loins, and a catching of the breath, shooting upward, as if from the middle of the back, near the spine.

These complaints had often obliged her to pass the night sitting up in bed. The violence of the attack had sometimes been materially relieved by ætherial medicines and opiates.

June 3. A severe pain came on in the back, a peculiar sense of warmth referred to the seat of the left kidney, especially increased by flurry, heat, or exertion, with a heavy bearing down pain in voiding

water, which deposited a copious white albuminous cloud at the bottom of the glass, in which I could discern particles of a red powder. The urine poured off, and the powder washed and dried, proved to be composed of fine crystals of uric acid. Some aperient medicines were directed, at short intervals.

June 30. The medicines regularly continued; the white and the red deposit in the urine had diminished, although slowly. On this day the urine was clear from albuminous matter, although the red sand still appeared at the bottom of the glass; and, on examining the dried matter precipitated from the urine a few days before, some few white shining crystals of the triple phosphate were discerned, and by a glass very distinctly seen, among the finer but more abundant particles of uric acid. As it was clear that the existing diathesis still favored the deposition of uric acid, I directed a drachm of carbonate of soda, two or three times a day.

July 10. The urine now deposited neither gravel nor albuminous matter; pain at the loins much relieved. The alkali was laid aside, and an aperient ordered, every night.

About the middle of *August*, the pain in the loins, and deposit of uric acid, and albuminous sediment in the urine returned, and soon became as bad as ever. I now directed her to try a blister, kept open for some time upon the loins, without medicine, hoping thus to derive some benefit.

August 25. The urine had again become clear, and although the blister had been troublesome, there had been less pain in the loins since its application than at any time within the last four months. She was therefore still advised to keep the blister open.

September 26. Yesterday afternoon not very well, from a dull pain about the small of the back; towards evening she was obliged to lift a very heavy weight, after which exertion, the pain in the loins was so much worse as to prevent her getting any sleep at night. The urine immediately became loaded with

fine albuminous flocculi, and though transparent, was of a bright crimson colour, from blood diffused through it. The recent strain to the loins, added to the previous increase of pain, I had expected would at least have brought on a fresh deposit of uric sand; but the total absence of this appearance, especially as the disturbance suffered by the kidneys was evidenced by the presence of albuminous matter and blood in the urine, drew my attention particularly; upon enquiry, I found the blister was still kept open. This fact I conceive to be important, in illustration of the power such a means possesses, in correcting derangement in the functions of the kidneys. I desired her still to keep up a discharge from the blister; to take at night a moderately powerful opiate; and to pay constant attention to the bowels.

October 10. The uneasiness about the loins almost entirely gone, and the urine permanently clear and healthy, she was now allowed to have the blister healed.

February 1823. This person remained free from any return of her complaints.

CASE 18.

Uric Gravel, and Renal Calculus.

A HARD-WORKING woman, aged 42, was suddenly attacked in the night of *August 4. 1822*, with pain in the left loins and about the hip. On rising in the morning, the pain was so severe, that on stooping, she could scarcely recover herself. The pain shooting down into the bladder, induced constant desire, and acute pain in making water, which was clear, and appeared healthy. The ensuing week she felt sickness at stomach, as she supposed, from the continued violence of the pain. In health, she was accustomed to pass generally two pints and a half of water in 24 hours; but the first week of this attack, not half that quantity, though the quantity

and quality of drink were as usual. During the second week, she was sure, that although the constant urgency to make water through the day was greater, she did not void half a pint in 24 hours. She was never disturbed during the night.

August 18. She first applied to me, observing, that for many years she had been subject to occasional attacks of red gravel, with frequent desire to pass water through the day, but never before with pain in the back. I ordered a blister to the loins, and an opening draught every night.

September 5. Pain much relieved; now able to stoop down and get up without any difficulty. Bowels kept open by the medicine, although naturally costive. The blister, contrary to my desire, had been healed; but she had applied leeches.

September 7. At the first of the attack, with constant desire, pain, and straining, she did not make half a pint of urine daily; now so much better as to pass with ease and comfort, with the same quantity of drink as before, at least two pints, free from sediment, in the same period. The breathing, and power to turn in bed, much more free. For the last two days she had felt a constant burning pain in the direction of the left ureter, much relieved by the operation of an aperient. She was ordered a dose of the compound powder of ipecacuanha, for an occasional anodyne; and castor oil, when confined.

October 15. The powder had produced sickness in the morning, but was taken generally at night, with the greatest benefit. To use her own words, it had "worked all the pain away," leaving her as light, active, and well as ever; and truly thankful.

There is every reason to believe, in this instance, from the urine being clear, from the peculiar pain in the ureter on the same side, as well as from the manner in which that pain was relieved, that a small calculus had passed down from the kidney, towards the close of the attack; although it escaped unobserved.

CASE 19.

Deposition of Uric Gravel removed by Blistering.

A YOUTH, aged 16, was placed under my care, in November 1821, for a frequency and uneasiness in making water; and as there was no distinct symptom of stone, nor any decided sediment in the urine, I directed medicines for some time without relieving, or indeed clearly understanding, the symptoms. The necessity for making water the moment the desire was felt, was so great, that frequently a few drops previously escaped, giving a very peculiar red stain to the linen; which, totally unlike blood, I could not exactly account for.

February 14. 1822. With the above symptoms, the urine, otherwise of healthy appearance, now exhibited a very sparing sediment, which, by a glass, I made out to be fine red crystalline particles of uric acid. He was directed a drachm of the subcarbonate of soda, to be taken daily in an aperient mixture.

February 19. Symptoms much relieved; daily quantity of the medicine diminished.

February 26. Urine free from any trace of cloud or sediment; and instead of every three or four hours, was only passed now every six or eight hours.

March 1. Laid aside the fifteen grains of soda, substituting a scruple of magnesia, in his aperient mixture.

March 6. The quickness and frequency of urine had now returned, bad as ever; and the water, free from mucus, again deposited crystals of uric sand; some attached to the sides of the vial, others loose at the bottom. He was directed a drachm of soda daily, as before.

March 16. Urine perfectly clear of uric sand; the frequency of passing it being diminished from eight to five times in the 24 hours. Medicine continued.

March 21. Although the medicine had been punctually continued, the frequency of passing water had again increased, while, in appearance, the urine was perfectly healthy. I now determined to lay aside medicine ; and directed a small blister to be applied, and kept open, upon the loins ; the bowels to be regulated by castor oil.

March 26. The blister very irritable and painful, but the complaints completely gone. The power of retention so improved, that he could now easily hold his water for two hours after he felt the desire to pass it.

April 4. From a severe cold, the urine for a few days deposited a fine pink-coloured albuminous powder, but not a particle of gravel. A gentle aperient was directed ; and the blister, at his particular request, was permitted to be healed.

March 1823. This young gentleman remained perfectly well.

CASE 20.

Deposition of the Phosphates removed by the Exhibition of the Muriatic Acid.

A MAN, aged 50, taken into the St. George's Infirmary, *Dec. 9. 1815*, had been for twenty years subject to gravel. The most severe attack, in 1803, had confined him to bed near a month, with pain at the loins, and constant anxiety to pass urine ; voided by drops, with extreme pain, turbid, and depositing more or less of a red gravel. From this period he was never confined, but his water often passed involuntarily.

He now suffered much pain in the kidneys, and uneasiness in the bladder. The urine, voided in small quantities, excited cutting pains at the neck of the bladder, great straining, and sometimes bleeding. There was also retraction of the right testicle, and a numbness down the thigh.

The urine loaded with mucus, deposited a calculous matter, containing some few crystals of red

gravel, but principally composed of white sand. Desired to take no fermented liquors; he was ordered ten drops of muriatic acid, in water, three times a day.

Under this plan he soon found relief. It was remarkable, however, that the symptoms, from irritation, declined some time before any sensible diminution in the quantity of sand in the urine. In a month he was so much better, that he requested to be discharged. The little remaining traces of calculous deposit were now only occasionally detected. He said he had not been so entirely free from pain and uneasiness, or at any time able to void his water so well for many years as at present.

Soon after quitting the Infirmary, these complaints entirely left him.

CHAP. III.

ON URINARY CALCULI.

SECT. I.

On Urinary Calculi in general.

150. **W**HERE the substances already noticed make their appearance in the urine, the patient is constantly liable to be assailed by evils of greater magnitude than those commonly arising from gravel. The matters of which these sediments in the urine are composed, frequently form hard masses, constituting calculi, variously lodged either in the cavities or canals of the urinary organs.

151. As to the discrimination of one species of calculus from another, while yet concealed within the living body, it seems to be impossible, unless an opinion is formed from the examination of the appearance and composition of gravel or sediment voided at the period of enquiry; and even this means is only capable of throwing light upon the present turn or diathesis of the constitution, without affording the least precise information whatever, with regard to the preceding stages of growth or composition of the calculus.

152. From what I have myself seen of calculous complaints, it appears that although the degree of distress, and the particular symptoms occasioned by these disorders, may be regulated in a great measure by the seat, form, and composition of a calculus, they are still more immediately dependent upon the prevailing turn of the patient's constitution.

153. The following remarks, consistent with the object of the present work, will be confined to the enumeration, and outward appearance, of those species of urinary calculi hitherto observed; the

modes of ascertaining and distinguishing the properties and dispositions of these substances, by the more accurate and delicate means of chemical analysis, forming a distinct field of enquiry, that falls more immediately within the department of scientific chemistry.

154. Dr. MARCET, who has exhibited the forms and colours of the various calculi, in his arrangement of urinary concretions, mentions, *first*, the lithic acid calculus. Colour usually a brown or red; surface smooth, or sometimes finely tuberculated. *Second*, the bone-earth, or phosphate of lime, calculus. Colour pale brown; surface smooth, as if polished. *Third*, the ammoniaco-magnesian phosphate calculus. Colour nearly white; surface commonly uneven, and covered with minute shining crystals. *Fourth*, the fusible calculus; a mixture of the triple phosphate, and phosphate of lime. Colour whiter than the former, consistence more soft and friable than any other species. *Fifth*, the oxalate of lime, or mulberry calculus. Colour very dark brown, or black; consistence usually hard; surface very rough and tuberculated. *Sixth*, the cystic oxyd calculus. Colour yellowish-white; surface commonly smooth, exhibiting a kind of crystalline appearance. *Seventh*, the alternating calculus, composed of two or more species, in alternate layers; external characters variable. *Eighth*, the compound calculus, of which the ingredients are intimately mixed; external characters variable. *Ninth*, the prostatal calculus. Colour yellowish-brown, or a fine pearly hue and polish; surface smooth. To these Dr. MARCET adds the two following, discovered by himself. *Tenth*, the xanthic oxyd calculus. Colour that of reddish-brown cinnamon; surface smooth, compact, and hard. *Eleventh*, the fibrinous calculus. Colour yellowish-brown; consistence that of bees-wax; surface uneven, but not rough. In addition to the above list, Dr. PROUT enumerates the two following con-

cluding species. *Twelfth*, the lithate of ammonia calculus. Colour generally that of clay; surface smooth, or tuberculated. *Thirteenth*, the carbonate of lime calculus. Colour perfectly white; texture very friable.

155. The power of acting upon and dissolving a calculus, in the living body, by means of medicines, is an object of such importance, that numberless experiments have been made for its accomplishment, and many distinguished characters in physic have devoted their time and talents to its attainment. Alkaline medicines have by these means been ascertained to be useful, and it was for a long time believed they actually possessed a solvent power. More extensive observation, however, has not favoured the permanent establishment of this opinion.

156. It is certainly true that alkaline medicines very frequently contribute to the comfort of those afflicted with stone, sometimes essentially relieving all the symptoms; and the mode in which these remedies operate favourably, is by slowly diminishing the irritability of the bladder, by which the excitement is lessened, the tendency to contract violently upon the calculus is checked, and from the tone of the system being thus insensibly and gradually lowered, the whole train of distressing symptoms are rendered milder than before.

157. In some cases, where after a long course of alkaline remedies, the symptoms had declined, the patient had recovered his former health and activity, and the stone was therefore concluded to be certainly dissolved, and washed away with the turbid urine, the error has after death been discovered to have arisen from the bladder having formed a recess or pouch, into which the stone being received, has afterwards ceased to produce symptoms; and the patient has been thus happily delivered from one of the most terrible and severe afflictions.

158. With regard to the introduction of fluids

into the bladder by injection, with a view to the dissolution of a calculus, according to the suggestion of FOURCROY, and subsequent recommendations of others, it is only necessary to observe that, from all that has been done upon the subject, it appears that the irritable cavity of the bladder is not likely, in any instance, to admit of the necessary perseverance, without injury to itself; and that the ill consequences to be feared from these experiments, very far outweigh the good that can be expected, or even hoped for, in any reasonable estimate, grounded, as all such estimates should be, upon experience.

SECT. II.

On Calculi in the Kidney.

159. CALCULUS or stone in the kidney, the occasional consequence of the causes already noticed, as productive of gravel (118.), most frequently induces a train of symptoms, attended with much distress to the patient. Sometimes, however, these bodies have been found, after death, where their existence was never suspected, from their having produced neither symptom nor sensation.

160. Calculous matter, in whatever form it may occur, is only met with towards the internal parts of the structure of the kidney; BOERHAAVE observes, “*Neque unquam in corticali substantia renum.*”* In the more internal part of the cortical substance, however, I have, in one instance, found minute concretions, apparently in the tubuli. (Case 4.)

161. The most usual seat of calculi in the kidney, is either the infundibula, or pelvis; they are also frequently found to occupy, and sometimes close up, the opening into the ureter.

162. Occasionally the habitual action of these

* Prælect. Acad. vol. iii.

glands, even under derangement in their functions, is very uniform; the kidneys continuing, for many years, to furnish a succession of small, smooth, rounded calculi, like small peas; which, escaping through the ureter and bladder, by the urethra, give rise to no very serious inconvenience. In other instances, a single calculus will form, and during a long period of confinement, and perhaps also from its acquiring a rough or angular surface, will excite all the worst consequences of continued irritation.

163. Sometimes calculi, originally formed in different parts of the kidney, may, by continued growth or increase, be brought at length into contact with each other; and, in particular instances, the further progress of concretion may effect the junction of the two parts, so that the whole shall eventually become one calculus. This I have observed to be the case, in making a section of a renal calculus, exhibiting two nuclei.* Neither has this remark escaped the penetration of M. DESAULT, who observes that, occasionally, they are “*agglutinés les uns aux autres.*” In this way it probably happens that, in particular cases, the whole of the cavities of an enlarged kidney have been found occupied by one very large and extensively-branched calculus.

164. Where a number of calculi occur in the same kidney, it commonly happens, that the surfaces of mutual contact are more smooth and polished, than any other parts. As a general rule, it has appeared to me, from what I have observed of these complaints, that calculi, composed of the phosphates, usually produce most distress; next to these, calculi of uric acid, where the surfaces are rough and angular; and next to these again, calculi composed of other ingredients, operating, perhaps, in the excitement of sympathies, or symptoms, very much according to their form, size, and particular situation or position.

* See PLATE I. *Fig. 1.*

165. It is curious to observe how small a calculus will, in some cases, excite a distinct and clear impression, as to its existence, in the patient's mind. In one instance (Case 30.), I found a small stone, not larger than a pea, in the pelvis of the kidney, without its appearing to have excited any material extent of irritation; where, notwithstanding the patient had, for almost two years before, said he was quite sure there was a calculus in that precise situation.

166. A very frequent consequence of irritation from calculi in the kidney, is the abrasion, or laceration, of the capillary vessels upon the mucous membrane lining its general cavity; not unfrequently, the ultimate consequence of the long continuance of this irritation is inflammation, supuration, and ulceration of the substance of the gland. By these means, the healthy organization of the kidney is occasionally destroyed, being found, after death, converted into a sort of pouch or large bag, filled with a mixture of purulent matter, urine, and calculi. (28.)

167. It is rarely possible to pronounce with certainty as to the existence of calculi in the kidneys, the indications being all derived from the deranged feelings and functions of the parts; and it now and then happens, that the kidney is found filled with calculi, in those who never had felt either pain or uneasiness that could lead to a suspicion of such complaint. These cases, however, are only to be regarded as exceptions to the ordinary course of disease, the functions of the parts concerned being commonly more or less disturbed by the presence of calculous concretions.

168. The most common symptom produced by renal calculus is a dull obtuse sense of weight, or pain, referred to the seat of the kidney, without perhaps the least visible derangement either in the secretion or excretion of the urine, or any material disturbance to the constitutional health. Occa-

sionally, however, the pain may become sharp, and so severe, as to equal that of acute inflammation, aggravated by every movement of the body, or even the attempt to turn in bed; producing various affections, from sympathy, in the lower limb, as in inflamed kidney; the patient complaining of cramps, violent tremors, sense of numbness, pain, and retraction in the testicle, to which M. DESAULT adds a progressive wasting, and occasionally a total absorption of the gland; an effect of this irritation that I have never seen.

169. Persons afflicted with these complaints are generally irritable and watchful, frequently feverish, and mostly subject to affections of stomach, nausea, and vomiting, with occasional tenderness in the abdomen. The secretion of urine variable; at one time free, at another nearly suppressed; now clear and limpid, then high-coloured, often tinged with blood, and sometimes consisting of little else than pure blood. The last mentioned appearance, which is very commonly the effect of exercise, as in stone in the bladder (Case 25.) may continue for a few hours, or for several days.

170. In perhaps the majority of instances, the tendency to secrete calculous matter is confined to one kidney; frequently, however, this disposition exists in both at the same time. Mr. SHERWOOD mentions a patient, long troubled with grievous pains in the back, who had voided great quantities of pus with all the urine she made, so that there was no doubt of there being ulcers in the kidneys. She herself often declared there were stones in the kidneys, which, on any motion of her body, she could feel grate on each other. On examination after death, the kidneys were both much enlarged, and within them calculi distinctly felt. In the right kidney several stones, branched like coral, extended into the infundibula from the pelvis, which was in each kidney so enlarged, as to contain half a pint of pus and more. These calculi appeared to

have formed cells in the parenchyma of the kidneys, which cells were all ulcerated within, and full of matter. The left kidney was full of matter, and contained one large stone.*

171. When, as sometimes is the case, calculous disease occurs in conjunction with some other malady, the complication rarely fails to aggravate the sufferings of the patient. A case of this kind is related by Mr. G. BELL, in a man for years afflicted with stone and gravel, who had also a rupture. In a severe fit of the stone, attended with the most violent tenesmus, and vehement desire to void his urine, a quantity of intestine was forced down, beyond his power to reduce. The rupture was large, but his urgent complaint was violent pain in the back, and along the ureters, with vomitings; exquisite pain at the neck of the bladder, and in the glans, with unusual weight in perineo. The urine, rendered with great torment, drop by drop, was highly foetid; sometimes purulent, at others of a coffee colour. In this misery he lingered several weeks; and on his death was opened. The left kidney was found wasted away to a thin ulcerated cyst, filled with blood and pus; the ureter much enlarged, and filled with a similar matter. The right kidney was ulcerated in several places, and full of purulent matter and gravel; the ureter enlarged. The bladder was found filled with clear urine, to the extent of three pints; within its cavity were two smooth stones, the size of windsor beans. A third calculus, the size of a filbert, which appeared to be the immediate cause of death, was discovered forced into the neck of the bladder, the passage of which it entirely closed.†

172. Another interesting and well defined case of calculi in the kidneys, complicated with other visceral disease, is mentioned by Dr. HUXHAM, in

* Phil. Trans. vol. xli.

† Phil. Trans. vol. xlii.

a woman of 60, long subject to pass gravel and small calculi, and for several years prior to her death, afflicted with nephritic colic, great pains in the stomach and back; sometimes her urine was bloody, at others she could pass none at all. At length dropsical, she complained many weeks before death of violent pain in the stomach, and a hard swelling under the ensiform cartilage; with almost perpetual vomitings, colic pains, extreme costiveness, and difficulty in voiding urine. For the last fortnight she vomited every thing, and had total suppression of urine; dying comatose and convulsed. On opening the abdomen, the viscera formed one confused mass. The omentum grown as it were cartilaginous, and almost tough as leather, formed several large scirrhus tumors, and some tubercles full of foetid pus. The stomach, bowels, and liver, diseased, and adherent together. In the cavity of the abdomen, were about six quarts of offensive serum. The urinary bladder, quite empty, and almost putrid, was moistened on the inside with a purulent matter. In the right kidney, a large stone occupied nearly the whole space of the pelvis; in the ureter, were two or three small stones, which with a very tough mucus, entirely closed up the passage, which obstruction was, indeed, nearly effected by the stone in the pelvis. In the left kidney was a smaller stone, within its pelvis, wedged into, and closing up the opening into the ureter. This last stone removed, though no other was found in the ureter, water could not be forced through it into the bladder, although a strong injecting syringe was used; for the cavity of the ureter greatly contracted, was at one part completely obliterated. *

173. When from long continued calculous irritation, the kidney falls into a state of suppuration and abscess, the feverish symptoms more steadily

* Phil. Trans. vol. xliii.

established, are observed to increase regularly towards evening, sometimes preceded by chills, succeeded by decided heat, and followed by a copious perspiration. The urine turbid, deposits a mucous, albuminous, or purulent matter, sometimes containing small coagula of blood, and occasionally appearances like shreds of the partly ulcerated substance of the kidney. (Case 3. and 4.)

174. Where abscess has formed within the substance of the kidney, whether from the presence of calculi, or otherwise, it is concealed at first by its deep situation, which prevents the possibility of the fact being ascertained, until from the development of circumstances already noticed (49.), the matter makes its way towards the surface of the body.

175. The determining upon the existence of calculi in the kidney, is generally a point of difficulty. Each of the symptoms usually produced by stones in the kidney, and in occasional instances all the symptoms together, have been induced by affections or diseases of other viscera, the pancreas, mesentery, spleen, or uterus. Where, however, the patient has in time past been known to pass gravel, or calculi, or where the complaint may be traced in the family, most of the other indications being present, there will be a pretty good ground for determining upon the nature of the disease. Upon the uncertainty of symptoms, LIEUTAUD remarks, that REGA opened the body of a man who had long complained of continual pain in his knee; and only found a large calculus in the kidney, where he had never experienced the least uneasiness. *

176. In general, calculi in the kidneys become sooner or later the sources of extreme danger, and not unfrequently prove the cause of death. Much, however, of the serious tendency of the symptoms, will depend on circumstances that can neither be

* Précis de la Méd. tom. ii.

calculated upon, or foreseen. Such are the varying states and turns of constitution, the size, form, situation, and composition, of the calculus, its rate of growth or increase, and some other points of equally difficult determination.

177. The direct aid of surgery can rarely administer to the relief of these complaints, unless in seconding the efforts of nature, upon the appearance of tumor in the lumbar region. The opening of the abscess may in this case allow the escape of the calculus, or permit its extraction; otherwise the efforts of art are merely palliative. Nature, however, has the power of stepping far beyond art, with a quietude peculiar to herself; as is proved by the account Mr. SIMMONS has given of a woman, who, after being ten years subject to gravel, had swelling in the left loins, which, after much pain, suppurated; the fistulous wound remaining open. Fifteen years after this a fit of increased distress and pain in the loins, came on. The discharge from the wound suddenly diminished, and in eight days a small pea-like calculus was extracted from the wound; after which no gravel was voided with the urine, though no urine ever passed by the wound. Six other paroxysms similar to the first took place, ending in a similar manner, so that seven calculi passed through the wound. In the intervals the health was very good; and the orifice of the wound, soon after the exclusion of a calculus, returned to its usual size, scarcely admitting a common probe.* A case somewhat similar is recorded by TULPIUS; but in this instance, the exclusion of the calculus occasioned a callous ulcer, through which pus and urine perpetually flowed.† Mr. CHESELDEN observes, that he had from three patients extracted calculi, which had made their way from the kidney to the integuments, occasioning abscess.

* Phil. Trans. vol. lxiv.

† Observationes Medicæ.

178. Where the distressing symptoms produced by calculus in the kidney, are extremely urgent, even where circumstances may render it almost absolutely certain that they arise from stone, it is scarcely possible to look to surgery for relief. The difficulty of cutting into the pelvis of the kidney from the loins, even in the dead body, is rather considerable, without opening some large blood-vessels, and the great and immediate danger from such an occurrence in operating upon the living body, is too obvious to require comment. A case, however, has occurred, and is recorded, in which even this operation was performed with success. A gentleman, reduced almost to distraction, by extreme torment from a fit of stone in the kidney, prevailed with an expert surgeon to perform the operation of nephrotomy. Hæmorrhage interrupted the operation, which however was completed the next day; the body of the kidney was cut into, and two or three small stones were extracted. The patient was instantly relieved from the severity of his pain, and there was no recurrence of bleeding. The wound became fistulous, from the constant passage of the urine. His health restored, the wound allowed a considerable time after the operation the escape of another calculus from the kidney, of the form and size of a date stone. Ten years afterwards, Dr. TYSON examined the wound, at which period the matter discharged had always a strong urinous smell; and his health and vigour at this time, 50 years of age, was remarkably good. *

179. As there is no mode of treatment known, by which calculi once formed in the kidney, can be dissolved, the attention of the practitioner must be principally directed to the alleviation of the symptoms, the preventing if possible the growth or increase of the disease, the opening of any abscess

* Phil. Trans. vol. xix.

should this be required, and where it is practicable the extraction of calculi.

180. Where irritation, spasm, or inflammation of the kidney are induced, the usual means may be employed. Inflammatory action in particular, will require the most prompt attention (20.); after which, anodynes, opiates, ætherial and other anti-spasmodic medicine, may in most cases be directed with great advantage.

181. Inflammatory action, if neglected, or allowed to proceed, will frequently run on to suppuration of the kidney; to prevent which, the strictest attention should be paid to quietude and abstinence. The regimen should be of the most cooling, and least stimulating kind. Even these means, however, will not always succeed, the majority of such cases declining eventually into a state of low hectic fever, under which the patient sinks.

182. Should abscess make its appearance upon some part of the loins or hips, fluid being perceptible, the mischief to be apprehended from the purulent contents escaping into, or injuring the surrounding parts, is such as to render an early opening in general advisable. It may also afford, perhaps, a chance of still preventing the entire destruction of the kidney..

183. As to the best mode of opening these abscesses, M. DESAULT observes, that as a free opening admits of a more satisfactory examination, and may also afford the means for removing calculi, the bistoury is upon the whole to be preferred. There are, however, as it appears to me, good reasons why the use of cutting instruments should be avoided in these operations, where the necessity for their use is not indispensable (57.); I therefore prefer Mr. HEAVISIDE's mode of operating, in which the external parietes being first carefully divided to some depth, a common trocar is passed into the cyst, and the contents evacuated. (51.) It will be afterward very easy to

examine, if necessary, the internal cavity, with a probe of sufficient length, to detect the presence, and the seat of calculus; and any required enlargement of wound may be subsequently determined on, when the necessity for it is clearly established.

184. When an abscess connected with the kidney is opened, should a calculus be detected, fixed in a deep situation, probably within the cavity of the kidney, all the good that would result from the enlargement of the external opening, might be the additional risk incurred by the operation, without affording to the patient any additional chance of getting rid of the cause of all his misery.

185. Where abscess in the kidney passes its matter to a considerable distance between or among the abdominal muscles, previous to its opening externally, it will, as a general rule, be expedient to follow and lay open the sinus, with a curved bistoury, until the more direct opening be found into the purulent cyst; we shall thus at least, facilitate the healing of a part of the ulcerated space, affording at the same time, a more ready means for examining the original abscess, where, if any calculus be found loose, it may be extracted.

CASE 21.

Renal Calculus, voided by the Urethra.

IN the following case, which fell under my notice at Scarborough, in 1808; a middle-aged man was suddenly attacked with violent pain, in and about the right side of the loins. After two days' continuance, the pain subsided, enabling him to return to his work, as a shoemaker; but for the next five months, he remained subject to the same complaint, which sometimes came upon him with such violence, as to excite fever. The most severe was always an acute pain, shooting down along

the ureter, and occasionally extending to the external orifice of the urethra.

Latterly he felt a degree of torpor, both in feeling and power of action, pervading the right side of the body and limbs; and occasionally a most distressing tenesmus, and urgency to void urine, although neither stools nor urine passed without extreme pain.

During the intervals, he rarely felt as in health, always conscious of some existing obstruction to the free passage of his water.

In one of these attacks, extremely ill, he took two grains of opium; it lulled the pain, and he got sleep. In the evening he took a second pill, slept well, and next morning arose free from pain or uneasiness. He thought himself quite recovered. Towards evening, in making water, he felt something make its way suddenly into the passage, obstructing the flow of urine. It gave great pain, exciting the most urgent straining; which continued till at length the cause of the obstruction was shot out from the orifice of the urethra, and the water then flowed free as ever; and on examining the chamber-vase, a small uric acid calculus, the size of a pea, was found to have been the cause of all his distress.

CASE 22.

Uric Calculi, from the Kidneys.

Sept. 30. 1821. I was requested to see a woman, aged 59, who for the last five or six years had been subject to attacks of violent pain, with sickness, vomiting, and cold sweat. At first she thought her complaint Lumbago, and was blistered, bled, and physicked, to no purpose. She soon, however, voided with her urine, a small brown stone, the size of a pea, which determined the nature of her complaint.

In 1818, she had a severe attack, continuing

ten days and nights; the violence of pain being confined to the right side. Towards the close of this attack, she passed another small calculus.

For the last twelvemonth, her water had been often tinged with blood, during the frequent and severe attacks of pain. She had voided several small round calculi during this period.

Sept. 1821. Her urine contained blood, more obvious after exercise, but evident when at rest; sometimes obliged to pass her water every ten minutes. The blood generally produced the appearance of an obscure chocolate colour; at times, the water was a brilliant clear crimson, when the blood was recently effused, but generally the colouring matter was dark, subsiding to the bottom. Acute pains about the loins, and down the right ureter, were sometimes very severe.

Sept. 30. I directed a draught, with forty drops of tincture of opium, to be taken occasionally; requesting that the bowels might, if necessary, be regulated by castor oil.

October 3. Much relieved from pain; the urine was now restored to its healthy appearance. After much walking the preceding day, a spasmodic increase of pain came on, with prickling and shooting in the ureter, so intense, that sometimes she could scarcely endure it.

October 9. Very much better, but not free from pain. She felt the pain coming round the side, and getting lower down, but with less apparent difficulty than usual. Urine perfectly clear.

November 13. For, the last three weeks, quite free from pain, and better than at any time for the last two years. After the late attack, no calculus had been found to pass; but it might, if small, have escaped unperceived.

May 6. 1822. This patient called, and brought me a small oval, minutely tuberculated, brown calculus, the size of a large pea, passed a month before, after a fortnight's severe distress, constant

urgent desire and straining to pass her water; most violent pains down the left side, sickness, vomiting, and cold perspirations. For the last week of this attack, besides frequently taking the opiate, she had used the warm-bath every evening, but the pains were, notwithstanding, very severe, commencing in the loins, shooting along the ureter, and catching the breath. Since taking the opiate, there had been no return of bleeding. She observed that she could not at present venture to draw in a full breath, the pain catching her in the loins, and shooting up into the chest, although she found her health much improved since taking the medicine.

November 1822. With a severe return of her symptoms, another uric calculus, similar to the former, passed from the kidney, and was presently voided by the urethra.

SECT. III.

On Calculi in the Ureters.

186. SMALL calculi frequently find their way into the ureters, and driven forward by the urine, pass downwards, and thus reach the bladder, sometimes with little distress to the patient. Much, however, frequently depends on previous circumstances. In some cases, preceding obstruction to the flow of urine may have left the affected ureter in a state of permanent enlargement, in which state I have known a calculus, the size of a hazel nut, pass down from the kidney into the bladder, without exciting any material uneasiness.

187. Occasionally, the ureter has been found not only much dilated, but from inflammation, and its consequences, partially lined internally with adherent gravel; now and then it also forms a sac or pouch in some part of its course, containing one or more small calculi, or a quantity of gravel, nearly or entirely closing its canal.

188. The dilatation of the ureters, and the retention of urine within them, from the passage of calculi, most frequently lead on to irritation, spasm, more or less inflammatory action, sometimes ulceration, and consequent rupture of the canal, and eventually a collection of urine in some part of the lumbar region, which is generally fatal.

189. The passage of a calculus through the ureter commonly excites irritation and pain in the course of that tube, with uneasiness or pain at the loins, numbness in the thigh, retraction of testicle, or pain in the groin, with distressing nausea and vomiting. A large calculus has, however, been found on its way through the ureter, where it had not excited a single symptom; and on the other hand, the whole train of symptoms, commonly attendant in these cases, has been sometimes found to occur, from complaints of a totally different kind.

190. The positive existence, therefore, of a calculus in the ureter, can very rarely be decided upon with certainty. Where, however, the present symptoms have been preceded by distress and pain in the kidney, the patient having, on former occasions, passed small calculi with his urine; where the pain moves progressively lower down, consistent with the usual movements of a calculus in reaching the bladder, the pain being influenced by exercise or rest, much like calculus in the kidney, sometimes acute and shooting, at others, dull and heavy, occasionally shooting on towards the pubes and hips, and into the urethra, and not unfrequently creating feverish heat and spasms; there will be every reason for giving a clear and confident opinion.

191. It is observed, by M. DESAULT, that those who propose as an indication of calculus passing the ureter, the retention of urine in the cavities of the kidney, go about to prove the existence of a disease by the presence of a symptom that is still more obscure than the disease itself. For, pro-

vided the cause of retention does not exist in both ureters, the quantity of urine voided may not be diminished, the secretion from the one kidney increasing in proportion as the functions of the other are impeded; and should both ureters be obstructed at the same time, there is no mode of actually distinguishing the case, from one of suspended secretion, or suppression.

192. Neither is retention of urine in the ureter by any means the uniform consequence of stone or gravel in the canal; for if a calculus be angular, the urine will sometimes flow freely enough by its flat surfaces, and if the passage is obstructed by a collection of gravel, the secreted fluid will, in occasional instances, filter through it, and thus find its way, with little difficulty, into the bladder: indeed, M. DESAULT says, “*On a même trouvé dans plusieurs cadavres les uretères pleins de graviers, à travers lesquels se filtroit ce fluide, sans que son excrétion en fût aucunement empêchée;*” and M. LE DRAN mentions the dissection of a woman who had been executed, in whom he found the middle of the ureter so distended as to contain a collection of three ounces of gravel, through which the urine passed, and filtrated as through a bed of sand.

193. Provided a calculus is sufficiently low, its presence may sometimes be detected by the finger, in examining by the rectum, or vagina; when even should the stone not be very distinctly felt by the point of the finger, the pressure forward, if there be a calculus, will almost invariably clear up any doubt, by instantly exciting the local pains and sympathies attendant upon calculus thus circumstanced.

194. Should the calculus have reached the lower orifice of the ureter, so as to project into the cavity of the bladder, it may be struck by the instrument used in sounding the bladder; but even then, whether it be a calculus in the ureter, or an encysted stone, partially concealed within its pouch,

can only be determined in opening the bladder by the operation for lithotomy, when the point of the finger may ascertain its exact situation. Upon this point, LE DRAN observes, he cut a patient who had a stone fixed in the ureter like a diamond in its socket, not entering the bladder above one-third of an inch, which prevented him, on the day of the operation, taking hold of it with the forceps. Finding, seven weeks after, it had made its way into the bladder about half an inch, he got hold of it, and brought it out. It was two inches long, and might have continued as fixed in its socket as before, had there not been a suppuration in that part.

195. The treatment that answers best for the relief of symptoms produced by calculus in the ureter, will be essentially the same with that laid down for the management of similar affections of kidney (180.); in the present case, however, the greatest reliance, after due attention to inflammatory symptoms (20.), is to be placed on the free and frequent administration of opiates, which, if directed with judgment, will sometimes operate as a charm.

196. The use of horse exercise, jumping or leaping, or the excitement of coughing or sneezing, with a view to assist in driving the calculus forward, although recommended by many writers of celebrity, is to be adopted with caution, as additional distress and mischief has sometimes been the only result. The same uncertainty, however, does not attach to the use of opiates, mucilaginous and emollient drinks, and the warm-bath, with constant attention to preserve an easy, regular, and free action of the bowels; all which means tend most powerfully and safely to facilitate the transit of calculus.

197. Where a calculus is detained within the lower orifice of the ureter, it has been proposed by LE DRAN to inject warm emollient liquids into the bladder, with a view to relax the opening, and favour

the escape of the stone ; any means tending to abate irritation and spasm, is doubtless likely to do good ; but it is experiment alone that can in any such case determine how much, or whether any benefit is likely to be derived from applications made in this way ; I should myself rather depend upon warm starchinjections with laudanum, occasionally thrown into the rectum.

198. In one instance M. DESAULT, in performing the operation for lithotomy, found the calculus confined within the orifice of the ureter, and by an instrument previously adapted to this particular emergency, he was enabled to finish the operation, and extract the stone.

SECT. IV.

On Calculus in the Bladder.

199. THE nuclei of urinary calculi are in general, but by no means invariably, derived from the kidneys. In occasional instances the careful division and examination of calculi proves that any foreign body, a small coagulum of blood, or any tenacious albuminous matter accidentally lodged in the bladder, may be sufficient for inducing at first a loose agglutination of calculous particles, and subsequently a more compact and firmly consolidated mass.

200. Any foreign substance also, finding its way by the urethra or by a wound or ulcer, into the cavity of the bladder, commonly becomes covered with calculous matter, for even where the diathesis does not previously exist, the irritation from the extraneous body appears to bring it forward, and in this way we see that instruments lodged in the bladder for a time are liable to become incrustated with rough particles of calculous deposit. (Case 59.) Upon the same principle, a grain of wheat, a pin or needle, very commonly a leaden bullet, in one instance a hazel nut (136.), and in another mentioned by DESAULT, from the female bladder, “une pomme

d'api," a small hard apple, the size of a cherry; have been found to form the nucleus.

201. Where, however, a foreign body forms the nucleus, a calculus is not subject to such variety in composition, as in other cases; being almost exclusively made up of the phosphates. In Mr. HEAVISIDE'S Museum, a very large calculus, which appears to be principally composed of the phosphates, perhaps with some carbonate of lime, has been formed upon a small central mass of mucous, or albuminous matter. *

202. A stone felt distinctly in examining by the sound, may not be loose in the bladder; or if so at one time, may not be so at another. The state of habitual irritation to which the bladder is commonly reduced by continued distress from stone, frequently induces additional and forcible efforts in contracting upon its contents; and under these circumstances, if it happens that the muscular strength of the coats of the bladder be unequally distributed, or not perfectly balanced one part against another, the weaker portion yields, and a pouch or sac is eventually the consequence, into which the stone may fall; and thus in some instances a calculus, within the reach of an instrument in sounding, may not without great difficulty be capable of removal, in the operation for lithotomy.

203. In certain instances again, where alkaline remedies have been taken, a stone, the previous existence of which was proved by sounding has disappeared; and the operator no longer able to find the calculus by an instrument, the patient at the same time experiencing the most perfect relief from his symptoms, and especially from voiding his calculous matter with the urine, it has naturally, but erroneously, been concluded that the stone has dissolved, and passed off by the urethra. M. LIEUTAUD, convinced of the lithontriptic powers of alkaline

substances, mentions a man, aged 50, who had made up his mind to be cut. The stone, struck by the sound, always produced the most acute pains, which were re-excited upon every attempt to expel a few drops of urine. Appetite, rest, strength, and flesh, all gone, he was persuaded to try Mrs. STEPHEN's medicine; and after seven months' use of it, during which period he voided many calculous fragments, he recovered his health, together with the power of retaining, and most perfect ease in voiding, his urine. The sound, now passed by the lithotomist who was to have performed the operation, could find no trace of a stone, in any position; and many eminent surgeons present, repeating the examination in every possible way, were all satisfied there was nothing in the bladder, and that consequently the cure was complete.* In another case, where this medicine had been taken, the patient having lost the symptoms of stone, and his surgeon the power of finding it by the sound, Mr. NOURSE examined the bladder after death, and found no fewer than six cysts, containing nine calculi.†

204. Several fine specimens of this state of bladder are preserved in Mr. HEAVISIDE's Museum; one particularly, containing several encysted stones, illustrative of the effect of supposed solvents, as in the above cases. In the Museum of the Royal College of Surgeons, there is the bladder of a man, with two sacs at its posterior part, each containing a large calculus, irregular and crystallized on its surface; the coats of the bladder, particularly those of the largest of the sacs, contrary to their general state, have become excessively thickened.

205. By careful attention to the progress of disease, we find, that in severe irritation of bladder from gravel, particularly where combined with stricture, excitement will proceed so far as to end in effusion of coagulable lymph upon the inner sur-

* *Précis de la Méd.* tom. ii.

† *Phil. Trans.* vol. xlii.

face of the bladder, and not unfrequently under these circumstances we find calculous matter adherent in patches to those parts where effusion had previously taken place. Very much the same thing may occur with stone, where long-continued irritation induces effusion of coagulable lymph, the surface of which, attaching itself to the uneven texture of the calculus, becomes a bond of union between it and the mucous membrane of the bladder.

206. In one case of this kind LE DRAN extracted from a lady, a stone of seven ounces and a half, the lower flattened surface of which was adherent by fleshy or fungous excrescences, arising from the bladder, and fixing themselves into the rough face of the calculus. The adhesion was separated with hardly any pain. Ten days after, the diseased part of the bladder sloughed away, casting off several thick pieces of membranous substance. Three other instances of adherent calculi are also mentioned by this excellent surgeon, each attached by a surface of less extent in proportion to their size; but as they all recovered, he could only learn the state of the bladder in one, who died some months after of bleeding from the nose, and nothing was then to be seen but a cicatrix.* Dr. PRESTON witnessed an operation, in which a calculus, adherent, could not be removed, and was therefore left behind; suppuration coming on, the medium of adhesion was destroyed, and on the eighth day after the operation, the calculus was extracted with ease; and the day after the separation, “the fibres by which it was tied were still attached.”†

207. The most interesting case, however, as proving the degree of violence the urinary bladder may sometimes endure, consistent with recovery, occurred to M. LE CAT, who opening the bladder by the high operation, in a case in which it was found

* LE DRAN'S Operations, translated by GATAKER.

† Phil. Trans. vol. xix.

contracted round a large stone, it proved to be so closely and at the same time so extensively connected, as to require great exertion and perseverance, as well as force, to separate the adhesions, and extract the stone; almost the whole rough surface of which was fringed with the fibres of the adherent substance, torn asunder. By strict attention to depletion and the warm bath, the patient perfectly recovered.* In a case somewhat similar, that occurred to Sir E. HOME, partial adhesion appeared to have taken place from irritation produced by injecting, for gonorrhœa.†

208. It does not appear that the particular composition of a calculus has any influence in favouring its becoming adherent; for in the case just mentioned the surface of the calculus was composed of the phosphates, but in another instance in which Mr. HEAVISIDE operated (Case 23.), a similar medium of adhesion had attached itself pretty firmly to a calculus of oxalate of lime. Neither is this disposition in coagulable lymph to unite itself to a stone, confined to calculous substances in the urinary passages, for I have once found and removed a gall bladder filled with small calculi, to which upon further dissection I found the inner membrane at every point closely adherent; a circumstance that induced me to put up the preparation, in Mr. HEAVISIDE'S Museum. An instance of a similar kind is also mentioned by Dr. BATT, where a gall stone was found adhering to the inside of the gall bladder‡; and I fancy other extraneous bodies are liable to the same thing, although I am only aware of one such instance (Case 59.), in which on gently drawing a short elastic gum canula out from the cavity of the bladder, I found it attached by its

* Phil. Trans. vol. xliv.

† Practical Observations on Strictures.

‡ Memorie della Società Medica di Emulazione di Genova. tom. i.

point to the internal surface, each essay to draw it forth exciting to the patient's feelings a curious and peculiar sensation of heat, but no acute pain in the part. When extracted and immersed in warm water, fibrous portions of coagulable lymph still attached, were very evident, and the separated parts were manifest. The adhesion of these fragments to the surface of the instrument was so strong, that in attempting to pull them off they tore asunder, still leaving some part behind.

209. The adherent state of a calculus may in some instances be tolerably well ascertained, in the operation of sounding, provided the stone be small, and the bladder capable of being somewhat distended with urine; for the sensation conveyed by the instrument may be perceptibly that from a hard body confined in a particular part of the bladder. This point, however, can in no case be positively determined; neither does its importance require that it should, for it does not appear that in any instance it should prevent the extraction of the calculus, nor that it would materially diminish the probability of a favourable event, by the operation.

210. The existence of calculus, either in the kidney or ureter, if known, leads very rarely to any possible assistance from the active hand of surgery; when, however, stone is present in the bladder, the surgeon has in general the power of determining positively upon its existence, and consequently of delivering a more clear opinion as to the course that under all the circumstances of the case should be adopted, for the relief or removal of the disease.

211. One of the most common symptoms of stone in the bladder, is pain in the seat of this viscus, and parts around. This symptom, however, is uncertain, for I some years since was requested by Dr. HOOPER to examine the body of a man, in whose bladder were found at least a dozen calculi, several of which were as large as a chesnut, where

upon enquiry it was evident there never had been symptoms ; but these occurrences are rare, for pain is generally present, though not at all times to the same degree of intensity. The pain is commonly more or less acute, dependent on the varying irritability of the invalid ; and the form or position of the stone ; generally calmed by repose, renewed upon the slightest motion, and most aggravated by horse exercise, or a rough carriage ; accompanied with a sensation of weight in the perineum, stupor in the thigh, and retraction of the testicle.

212. From extreme suffering, some patients are in a state of constant agitation, some will even pass a finger into the rectum, under the idea that they feel a hard body which causes bearing down, inducing at length prolapsus of the rectum, or hæmorrhoidal tumors.

213. In severe paroxysms, involuntary erections, with vehement irritation in the glans, are the most insupportable evils, often connected with a discharge from the urethra. Constant desire, and frequent want of power to void urine, the attempt exciting fruitless and fatiguing efforts to pass a stool. When the stone is large and rough, the pain is most acute after efforts to pass urine, from the internal surface of the bladder being pressed against the calculus, which still excites renewed contraction ; and should the stone be small and polished, it will sometimes find its way into the neck of the bladder, so as suddenly to arrest the flow of urine, and cause great pain. The last mentioned symptoms I have also known produced, by a curious and uncommon affection of the inner membrane, forming a transverse fold or valve across the neck of the bladder, opposite the orifice of the urethra. This complaint, as it increased, brought on occasional, frequent, and eventually permanent obstruction, only relieved by the introduction of an instrument ; and the young patient died eventually of retention of urine. *

* This disease, preserved in Mr. HEAVISIDE'S Museum, is represented PLATE II. *Fig. 3.*

214. Incontinence of urine is also an occasional effect of stone in the bladder; a circumstance that may depend on the uneven surface of a calculus fixed in the neck of the bladder, without perfectly filling the space. This position of a stone, which favours the flow of the urine over one part only of its surface, sometimes leads to the appearance of a groove or channel along one side of the calculus, by the influence of the stream.

215. The urine excreted, is in some cases loaded with albuminous matter, a light cloud, or heavy sediment, and sometimes a purulent matter, frequently mixed with blood.

216. The symptom of all those mentioned, least liable to deceive, is perhaps the irritation about the orifice of the urethra; but even this will occur only when the stone is pressing against the neck of the bladder; and in cases where there is no stone at all, the same sensation is excited by ulceration or other irritation at the neck of the bladder. (Case 59.)

217. The symptoms induced by calculus, depend much on the situation of the stone, which laying against the neck of the bladder, produces its clearest indications. Where it occupies a middle situation, the inconveniences resulting from it are generally less distressing, and in those few cases where it has been known to remain in the fundus of a relaxed bladder, Sir E. HOME observes it has produced extreme irritation in the rectum, and there only.

218. Affections of prostate gland are occasionally productive of symptoms, extremely apt to be mistaken for those of stone in the bladder. These, however, are less subject to aggravation under exercise than those from stone; and where the prostate is enlarged, it can be detected in examining by the rectum. The distressing symptoms from stone increase in paroxysms, compared with which the symptoms from diseased prostate are less subject to variation, and usually much less severe.

219. Symptoms alone, however clear or conclu-

sive they may seem, do not warrant a positive opinion as to there being a stone in the bladder. A better foundation is required, and we must not rest satisfied with symptoms, where we may obtain the evidence of our senses. The operation of sounding may enable the surgeon not only to feel the stone himself, but frequently to render it audible to by-standers. On this operation alone can we rely for obtaining a satisfactory proof of the existence of stone in the bladder, and without having ascertained the certainty of the fact by having felt the stone with an instrument, we can never recommend, much less perform, the operation for lithotomy.

220. The position of the patient in sounding must vary ; where the calculus cannot be felt in one posture, another must be tried. The full bladder has some advantages ; although the space then large, should the calculus be small, will sometimes increase the difficulty. It is, however, not easy to lay down rules for the management of this operation, for the most expert surgeon will sometimes fail in finding a stone, which shall be felt at once by another of much less experience.

221. A fasciculated state of bladder, the calculus being coated with a stiff tenacious matter, its being lodged within a pouch, or the point of the instrument getting into the opening of an enlarged ureter, are all circumstances mentioned by M. DESAULT as capable of embarrassing the operation of sounding. A fungous state of bladder, a tumor situated behind the pubes, a polypus, a pessary, or other extraneous body in the vagina, scirrhus of the uterus, or rectum, or hardened fæces in the bowels, are also stated to be capable of forming tumors that in sounding may be mistaken for stone ; it appears to me, however, quite unnecessary to go in detail into these points, as common attention will in general enable the practitioner to judge accurately as to the seat and cause of the complaints.

222. With regard to the selection of the instrument, the majority of practitioners prefer a metallic catheter, which has this advantage, that when the full bladder has been examined, the water may be allowed to run off, and the sides of the cavity, now brought into more immediate contact, may bring the calculus within the reach of detection; M. DESAULT prefers a metallic instrument, but others are occasionally induced to prefer one of elastic gum, one advantage of which, Sir E. HOME observes, is, that a person who has long suffered in perpetual pain and irritation, perhaps having had repeated attempts made to find the stone by sounding, is so struck by the idea of the torment he must endure by a repetition of the experiment, that he sometimes cannot possibly bring his mind to the proposed trial; whereas if his feelings are not alarmed, if he is merely requested to allow the urethra to be quietly examined by a hollow bougie passed into the bladder, he suffers little in apprehension, and not much more in reality.

223. The inconveniences produced by a stone in the bladder, may be trifling; but most frequently the sufferer is fatigued day and night by acute pain, occasional attacks of inflammation of bladder, and to suppuration and ulceration of its coats, accidents that usually hasten on to a fatal termination.

224. The principles of medical treatment, for preventing or retarding the growth of a calculus in the bladder, have been already explained (123. and 140.), regulated by those appearances in the urine, indicating the nature of the prevailing diathesis. Some few remarks may now be made upon the mode in which certain medicines appear to operate in the fulfilment of these purposes.

225. The symptoms arising from stone in the bladder, are very generally alleviated, and in some instances removed, by the exhibition of alkaline remedies, which may occasionally be given to such an extent, as to render the urine manifestly alkaline,

and capable of exerting some degree of solvent power, upon calculi of a certain description. But it rarely happens, that they can be given to this extent for any length of time, from their deranging the digestive functions, and sometimes exciting irritation and distress in the urinary passages. Considered therefore as solvents, the alkalies are now rarely used ; they are employed merely to relieve symptoms, or prevent the increase of the calculus, by checking the evolution of uric acid.

226. The influence these remedies are capable of exerting in these cases, extends, I believe, far beyond the mere prevention of excess of uric acid in the urine. There is sufficient evidence that they possess a decided power in lessening irritability of bladder, and of allaying its excitement, even where it has proceeded to the extent of inflammation.

227. Examinations after death, where a calculus that had long tormented the patient has become harmless, either spontaneously or from using alkaline medicines, have shown that the stone has become harmless by the bladder forming a pouch, into which the cause of irritation has been received. (202.) The state of the bladder also, where alkalies have been exhibited, is entirely changed, for instead of being found, as dissection teaches every irritable bladder must be, contracted, thickened, and highly vascular, it frequently appears larger than common, relaxed, soft, and pulpy, and sometimes even gangrenous internally ; not that gangrene supervening upon excessive action, but a chronic change derived from extreme debility in the vital powers of the part, and totally unconnected with any appearances of preceding excitement, effused lymph, or ulceration of the inner membrane. The result of Mr. WATSON'S experience upon this point was, that a person long afflicted with stone, if he has taken solvents for any continuance, generally has a very tender, relaxed, and weakened bladder ; which should be considered, and every

examination with metallic instruments, be conducted in the most gentle and careful manner.

228. The power of alkaline substances, to prevent or check the evolution of excess of uric acid by the kidneys, affords a striking instance, in which the functions of the living system are obedient to the known laws of chemical affinity; I am induced to think, that in the relief of the symptoms of stone by alkalies, the operation of the same laws may be traced somewhat farther.

229. The genius of Mr. HUNTER led him to conclude, that the blood, containing as it does, the elements of living matter, must in itself possess a living principle, that its spontaneous coagulation is a proof of vital power, and that this being the first step towards organization, blood recently coagulated must be regarded as still alive. Upon this principle, the albuminous part of a coagulum of blood, may be considered as under circumstances nearly similar to those of albuminous matter or muscular fibre, already laid down in the various structures of the body; and that much the same measure of vitality is enjoyed by this substance in both states, allowing for its being destitute in the one instance of certain appendages it possesses in the other, blood-vessels, nerves, &c.; and, consequently, such experiments as tend to illustrate the effect of chemical agencies upon the albumen of the blood out of the body, will also elucidate the principle on which the same substances operate upon the irritable and muscular fibre in the living system.

230. Now experiment demonstrates, that acids have invariably more or less power in promoting and confirming the coagulation and contraction of the albuminous part of the blood, while alkalies on the contrary, tend to weaken or prevent coagulation: indeed, in a concentrated state alkalies are capable of dissolving albumen, subsequent to its having assumed the solid form; and the power which pure or caustic alkali exerts, applied to the living body, producing immediate decomposition

by disturbing the arrangement of its elements, affords a strong proof that all organized matter is liable to be affected, even to destruction, when exposed to the influence of the more powerful chemical affinities.

231. Upon these grounds, it certainly appears to me, that although much of the good resulting from the exhibition of alkalies, in allaying the irritation from stone, may depend on their diminishing the secretion of lithic acid, they principally operate through the medium of the urine, by slowly abstracting from the inner surface, and muscular structure, of the urinary bladder, a certain proportion of its excitability, upon this principle diminishing not only the disposition, but the power also, for contraction and excitement; for contraction of the muscular coat, and inflammation of the inner membrane, both dependent on high tone, go hand in hand, are aggravated by the same causes, and relieved by the same means.

232. The exhibition of the alkalies have been observed frequently to create so much derangement of stomach, as to prevent their continuance, and in most cases they prove so unpleasant, as to ensure the patient's laying them aside very soon after the symptoms give way; and should the calculus in the mean time fortunately have dropped into some recess or pouch in the bladder, the happiest effects frequently follow.

233. The state of the stomach in this case, very effectually induces the patient to select the regimen best calculated to enable the constitution to recover its wonted vigour; by the same means, the tone of the bladder is also progressively improved, the first effect of which improvement is a degree of contraction excited around the calculus in the cyst; and as the muscular fibres naturally contract most, where the resistance is least, the orifice soon becomes the smallest part of the sac, and this circumstance explains why a calculus once encysted, rarely becomes again troublesome to the patient.

234. Where, however, neither the alkalies, lime water, soap, acidulous soda water, or caustic alkali, nor opium, hyoscyamus, or other narcotics, afford relief, the case may require the performance of the operation for lithotomy; a measure warrantable under certain circumstances only.

235. In the first place, it must not only be clearly ascertained, that the symptoms have been produced by a calculus, from its having been distinctly felt by the metallic sound, or other instrument passed into the bladder; but it must also be distinctly felt by the sound or staff at the commencement of the operation, for a stone long loose in the bladder, may subsequently become encysted, and should this change take place just before operating, the surgeon may be completely foiled in his attempts to find the calculus; and as to the sensation produced by the end of the staff passing over a hard, rough, or even calculous surface in the cavity of the bladder, even this may prove deceptive. A patient has been repeatedly examined by various surgeons, and the sound clearly perceived to grate upon a calculous substance, and upon the performance of the operation, no stone has been found, the deception having arisen from the instrument coming in contact with adherent gravel, giving the peculiar sensation mistaken for stone. Indeed this serious mistake may occur even without the presence of gravel. Such a case, recorded by DESAULT, occurred in a child, who for six months had with great difficulty voided his urine. The sound appeared to strike a hard body, and from the rectum it was supposed the calculus was distinctly felt. The operation performed and the bladder opened, the forceps were introduced, and to the surprise of the operator, no stone could be found. The child suffered excruciating pain, the attempts to find what did not exist, being continued for the space of half an hour. Convulsions supervened, and the patient in twenty-four hours expired. The bladder, in

which there was no stone, was contracted, compact, and of a cartilaginous firmness. The surgeons present all agreed that the collision they felt by introducing an instrument, might in this case have imposed on their sensation. *

236. In the second place, the state of the patient's general health must be considered, previous to determining on the operation. If the constitution appears good, with the exception of symptoms known to be produced by the irritation of calculus, proper medicines, aided by rest, will generally succeed in bringing the health into a favourable state; whereas, if on examining by the rectum, the prostate is found much enlarged, or if it is known to have been long diseased, where there have been fistulous abscesses in perineo with disease in the urethra, or severe sympathetic complaints, with tedious racking fits of pain about the lumbar region, and other symptoms of calculi in the kidney (168.), or where from any cause the strength of constitution is gone, the operation for lithotomy should not be recommended, nor ever performed, unless at the earnest solicitation of the patient; much, however, in the determination of this important question, must rest with the professional talents and judgment of the surgeon.

237. The operation for the stone, the only radical cure for the complaint, has been variously performed, at different periods of time; and most of the alterations successively suggested, may be considered as so many improvements in the art of surgery.

238. The earliest idea was that of cutting out the stone at the perineum. Two fingers introduced into the rectum, enabled the operator to press the stone forward against the perineum, and the wound made with a knife, was enlarged sufficiently to allow the calculus to be protruded into

* Journal de Chirurgie, tom. ii.

it; and the stone then hooked out, the operation was finished. This was the mode adopted by CELSUS.*

239. This operation was, however, liable to many objections and dangers, the principal of which were removed by HILDANUS, who first proposed the introduction of an instrument by the urethra into the bladder, to serve as a director in the operation. There were, however, still considerable difficulties in cutting through the perineum, so that it was at length proposed to extract the stone by cutting into the bladder, above the pubes; this particular mode, termed the high operation, was first introduced by PIERRE FRANCO, in 1561. The obvious risk, however, of opening into the cavity of the abdomen, and the consequences likely to ensue from this accident, were so many objections, tending to prevent this mode of operating being generally adopted.

240. The original idea of the operation now in use, appears to be derived from that proposed and practised in France, by FRERE JAQUES, who, in 1697, taught in Paris his method of cutting for the stone. Passing a large staff into the bladder to direct him, he plunged a short dagger-shaped knife at once through the perineum into the bladder, and then removed the stone with the forceps.

241. The striking feature of improvement in this operation, was the superior boldness and decision with which it was performed, by which an ample and adequate wound was promptly made into the bladder, instead of having recourse to the means previously in use, for dilating, or rather tearing open, a small, and inadequate wound. FRERE JAQUES latterly adopted the grooved staff in operating, and it is astonishing, how constantly successful his operations were, subsequent to this period.

* Lib. vii. cap. 26.

242. CHESELDEN performed the operation by dividing the same parts now cut through with the gorget ; but he chose rather to make his section in the opposite direction. Instead of exposing the groove of the staff at the membranous part of the urethra, as is done in the present day, and then dividing the prostate and body of the bladder, he struck his knife first into the bladder, found the groove in the staff, and so divided upwards, cutting through the prostate gland and neck of the bladder. By this means he was sure to avoid any risk of wounding the intestine.

243. The use of the cutting gorget was first introduced by Sir CÆSAR HAWKINS ; and the following account of the present mode of operating with that instrument, will be found to differ in no material point from the operation performed by that surgeon.

244. With a view to the performance of the operation for lithotomy, some preliminary attention may be occasionally required. The plethoric patient should lose blood, and take cathartic medicine. A few hours previous to operating, a laxative enema should be thrown up, to ensure the rectum being empty, and to lessen the chance of its being wounded in the operation.

245. It is generally held an advantage that the bladder should be partially distended with urine at the time of operating, on which account, the patient should retain his water, for some time before. It is also essentially necessary that all the instruments that may possibly be wanted in an operation of so much importance, should be ready at hand, and laid in order upon an adjoining table.

246. The instruments that are, or may be required, will be the following ; a cutting gorget, and several grooved staffs of various sizes, the groove of each being accurately fitted to the beak of the cutting gorget ; several scalpels, one of

which will be necessary in the commencement of the operation ; forceps, of various sizes and forms ; a probe pointed bistoury, for enlarging the section through the prostate gland, if the division effected by the gorget be not sufficiently free ; a large syringe for injecting the bladder, washing out clots of blood, or broken fragments or particles of the stone ; a scoop should also be at hand, as occasionally useful for the same purpose ; and, lastly, the garters necessary for securing the hands and feet.

247. Considerable difficulty is sometimes experienced in getting the staff into the bladder, after the patient is upon the table, and as any delay at that time unavoidably lengthens the period of alarm and terror, the staff had much better be introduced, and the stone again felt, so as to be certain of its being in the bladder, previous to his being bound.

248. The patient placed upon the table, his wrists are brought down to the outsides of his ancles, and firmly secured there by the garters ; the knees bent, and the heels brought back against the buttocks.

249. The assistant supporting the scrotum with the left hand, is with his right to hold the staff, so as to make the curve of the instrument project towards the left side of the perineum. The first incision should commence below the bulb of the urethra, opposite the membranous part of that canal ; at the point where the operator intends to expose the groove of the staff. This incision should extend three or four inches downwards, to the left of the raphe of the perineum, at equal distances from the tuber ischii, and the anus. The next object, is the division of the transversalis perinei muscle, a circumstance essential in the operation. The point of the knife is then to be passed into the groove of the staff, puncturing the urethra, and exposing the groove of the instru-

ment as near as possible to the prostate gland ; in doing which, the knife should be made to divide the urethra as far as possible along the groove of the staff, towards the bladder, a precaution, that if properly attended to, prevents the risk of the beak of the gorget being entangled by the soft parts, which would endanger its escaping from the staff, and passing in a wrong direction. The knife laid aside, and the beak of the gorget accurately and securely set in the groove of the staff, the operator takes hold of the handle of the staff himself, raising it up from the groin, till the handle of the staff forms a right angle with the body of the patient. Before pushing on the gorget, however, the beak should be moved backward and forward a little, to ascertain its being fairly and freely placed in the groove. The bringing forward the handle of the staff, so as to raise its point in the bladder, is a circumstance of the highest importance ; for regulated by this the gorget, the handle of which must be somewhat depressed as it passes forward, will be so introduced, as to pass on into the bladder, in the proper line of the axis of the pelvis, by which care, the risk of wounding the rectum is avoided.

250. The gorget, fairly in the bladder, may be again withdrawn, and the staff also being removed, the forceps should be immediately passed ; and whenever the finger can be made to reach the stone, it will prove the most useful of all directors, for the application of the blades of the instrument. Where this, however, cannot be done, the stone may be repeatedly touched with the blades of the forceps, previous to their being opened, so as to enable the operator not only to ascertain its precise situation, but to determine in some degree its probable size and figure, before attempting to grasp it with the instrument.

251. Sometimes the fundus of the bladder will require to be supported, and raised up a little by two of the fingers of the left hand, introduced into

the rectum, to enable the forceps to take a fair hold of the calculus.

252. In the first attempts to extract the stone, the greatest care should be taken to press the blades of the forceps together, as lightly as possible, unless it has been previously ascertained that the texture of the calculus is compact and hard, when this caution becomes of less importance.

253. The figure of a single calculus is generally more or less of a flattened oval, and when it is large, it becomes an object of consequence that it should be so settled between the blades of the forceps, that its long diameter, or axis, shall be parallel to the length of the instrument, that it may be removed with the least possible difficulty or violence.

254. Many contrivances have been suggested for the purpose of breaking up and crushing a stone in the bladder, when too large to admit of extraction; some of these instruments exhibit great ingenuity, but they have, I believe, in no instance of real difficulty, been found to answer the purpose for which they were constructed. The breaking a large calculus to pieces out of the body, and the application of a complicated instrument around a large calculus in the bladder, amidst the pain, hæmorrhage, and difficulty of an operation for stone, are very different things; the one may be perfectly easy, the other altogether impracticable.

255. The stone, when extracted, should be carefully examined, as its appearance will in general point out whether there are other calculi, or not. If any part of its surface be particularly flattened, or smooth, it is probably the result of friction with another calculus; and the bladder must be attentively and repeatedly examined, to ascertain whether this is the case. The examination of the cavity of the bladder should always, as far as possible, be made with the finger, to learn whether any loose fragments of stone, any adhesive mucous

deposit, or sabulous matter remain behind ; for, in either case, the bladder may require to be well washed out by the syringe and warm water. Experience has shown that either of these substances may, if neglected, become the nucleus for a future stone to form upon.

256. The hæmorrhage that occurs either in, or immediately subsequent to the operation, may sometimes require such pressure locally as may prevent its continuance, or perhaps the dilatation of the wound, in order that, if possible, the artery may be taken up. Where the first expedient will answer, it is preferable for two reasons ; it is more expeditious, and it conveys less alarm to the mind of the patient. It may be effected by the introduction of an adequate piece of firm dry sponge into the whole depth of the wound, and as this absorbs the moisture, it will continue to swell, until the bleeding subsides. It is, however, necessary to recollect, that when the tent is subsequently removed, the bladder should be carefully examined, to ascertain that no coagulum of blood is left within its cavity.

257. After the operation a simple pledget may be placed over the wound, and retained in its place by a bandage. The patient may then be laid in bed either upon his back or side, with his thighs closed ; and a large opiate given.

258. Some care will be necessary in so disposing folded cloths and blankets upon the bed, as to receive the urine flowing by the wound, with as little exposure as possible to the chance of the patient's taking cold from the constant moisture of the parts ; from the neglect of this precept I have known an instance in which severe cold, presently followed by inflammation of the peritoneum, came on, and the patient died.

259. Inflammation of the bladder, extending itself to the membrane lining the cavity of the abdomen, forms one of the most serious dangers,

subsequent to the performance of this operation. The most unerring sign of this event is a degree of tenderness, more or less considerable and extensive, spreading itself over the region of the abdomen, from the immediate seat of the urinary bladder.

260. Should this peculiar tenderness arise, the pulse, which in this case generally proves deceitful, must not be at all depended upon ; it will feel weak, small and languid, but leeches, repeatedly applied, and even the lancet, if the pulse will at all admit of it, will bring relief, and, together with fomentations, aperient medicines, and the strictest abstinence, will form the plan on which we must depend for saving the life of the patient.

261. The gorget is on some accounts a convenient instrument, but many surgeons are of opinion that from its having been repeatedly found, even in the most expert hand, liable to slip from the staff, or without this accident subject to inflict a second wound through the bladder, it should be altogether laid aside ; particularly as the operation may be just as well performed by the knife alone.

262. An ingenious mode of operating with the knife has been described by Mr. BURNS, in which the operation commenced as for the gorget, is finished by means of a second staff, introduced through the wound in the membranous part of the urethra, the knife and staff the being brought out together by the perineum ; and this, if properly executed, prevents the possibility of accident. But the fact is, that if the surgeon is sufficiently attentive and careful in operating, there can be no occasion for a second staff at all ; for if the first incision is conducted in the manner above directed in operating with the gorget, and the first opening which must be freely made by the scalpel, in the membranous part of the urethra, be then carried through the prostate gland and as much as is necessary of the exposed part of the bladder, by setting the back of the knife towards the groove of the staff, the operation will be finished in the manner

in which I have once performed it with success, and in the manner already recommended by several excellent surgeons.

263. The operation for lithotomy is rarely if ever required in females, a circumstance that depends on the organization and functions being more simple in the female, than in the male urethra. The office of the male urethra is two-fold ; it must afford a constant conveyance for the urine, when the bladder is relieved of its contents ; and has also another important duty to fulfil, in the occasional expulsion of the semen ; and for the performance of this latter function, a complicated structure of the parts immediately surrounding the canal was required. The only purpose of the female urethra, on the other hand, is to allow the urine to pass off, upon the natural impulse being given, for which reason the female urethra is extremely short, simple in structure, and capable, in some instances, of admitting of a degree of dilatation, which, if the facts were not authenticated, would scarcely be believed. (Case 24.)

264. Should the symptoms of stone in the female require the extraction of a calculus from the bladder, the first point of regard will be to allay irritation, if present ; after which, the urethra may be relaxed by one of those instruments ingeniously contrived by Mr. WEISS, of the Strand, for this purpose ; and when the operator has thus been enabled to determine the figure and magnitude of the calculus, by examining it with his finger, he will more readily decide whether a partial division of the neck of the bladder, or further dilatation only, will be expedient for finishing the operation.

265. The constitution will in most instances bear the irritation and distress produced by stone for a very long time, still retaining the power of recovering itself, upon the removal of the disease. In one case a child six years old, who had been at times in the most severe torments for more than two years, reducing him to a skeleton, was cut by

Mr. WATSON, and an oval calculus, rough and irregular upon its surface, apparently made up of smaller masses of gravel, intermixed with shining crystalline particles, removed; weighing near an ounce. The patient did perfectly well. The same surgeon operated for stone upon a boy of eight years, troubled with the disease from three years old. He seldom got a night's rest, frequently made bloody urine, and was greatly reduced; but still any interval of ease restored him to good spirits. The calculus, angular and rough, weighed three drachms. The patient recovered perfectly in about six weeks. In another boy of twelve years, who from a year old had suffered from symptoms of stone, a mulberry calculus was removed, weight not mentioned; but Mr. WATSON expresses his surprise that a calculus so long in forming should have been found no larger.

266. The operation for lithotomy occasionally derives its most serious importance from the magnitude of the calculus; a circumstance which in some instances may even impede or prevent the introduction of the staff. In most of these cases the scalpel is a more handy, and safe, although perhaps rather less expeditious instrument, than the gorget, for performing the operation. A calculus, exceeding ten ounces, was thus extracted by Mr. DICKINSON.* In another case a stone, weighing more than fourteen ounces, was extracted broken from the bladder, by Mr. C. MAYO of Winchester; the removal was a work of much difficulty, and must have required great dexterity and perseverance. The manner, however, in which both these operations were performed, is best attested by the circumstance of each of the patients having happily recovered; although the extreme fatigue and exhaustion from the intense pain incident to such operations, were of course got over with difficulty.†

* Med. Chir. Trans. vol. xi.

† Ibid. vol. xi.

267. A calculus will in some rare instances attain an enormous magnitude. One is upon record, the removal of which was attempted during life; but the patient died in the operation. Extracted after death, the stone weighed fifty-one ounces.* A highly interesting and instructive case of this kind has been recorded by a late eminent surgeon, Sir JAMES EARLE†; and the calculus, which weighed forty-four ounces, is deposited in the Museum of the Royal College of Surgeons.

268. In some instances, it appears to me that patients, in other respects doing well after the operation, have been lost in consequence of the indirect and latent influence of the calculous diathesis, inducing some sudden and severe indisposition, when least expected. Such I think was the case with a shipwright, aged 57, cut by Mr. JUSTAMOND in the Westminster Hospital. In *May* 1781, he felt uneasiness in passing water, and voided gravel in such abundance that he used to catch it in his hand, more than half a tea-spoonful at a time. The general appearance was that of a fine red sand, though sometimes at the bottom of the chamber-vase he found a deposit of a whitish cast, more like chalk. These symptoms had continued about a month, when for a few hours retention of urine came on, but was removed by fomentations. The next day he parted with a small stone, a quarter of an inch long and one-eighth broad. In *June* he applied to a Jew, who pretending to cure him, had injected a white liquor, which brought on prodigious discharge, and, as he said, burnt up and contracted the passage, as if he had had a fire in him, so that he very wisely laid aside that plan. In *July* 1782, he voided another stone the size of a pea; and had undergone a course of lime-water. He was cut *Aug.* 31. 1782, and *Sept.* 20 was in a very fair way of recovery. The stone of a flattened form, broader

• Phil. Trans. vol. xix.

† Ibid. 1810.

than a shilling, had a brown, compact, granulated surface, with a very large chalky nucleus; "so that once a soft stone, it afterwards became a hard one." When the wound was nearly healed, he unfortunately took a fever, and died just a month after being cut. On examination, nothing remarkable was observed, but a little inflammation of the intestines.*

269. In some cases, although very rarely, the cavity of the bladder, from the irritation of stone, has become partially contracted; the space being divided in the middle, something in the form of an hour-glass. Mr. JACK has related an instance in which this viscus, under the usual symptoms of stone, was found thickened, compact, and divided by a middle contraction into two cavities; a smaller at the fundus, containing a considerable quantity of sanious, foetid, and bloody matter; a larger, including the remaining part of the bladder, and containing a calculus of very singular form. One oval portion of the stone, the size of a pullet's egg, exactly answered to the figure of the cavity at the fundus of the bladder, to the extremity of which was attached by a narrow neck another portion of stone, placed transversely with respect to the former; the communication between the two cavities of the bladder corresponding to the small neck joining the two parts of the stone. The inner surface of the bladder in some parts covered with gravel, had the feel and appearance of sand-paper; in other parts it was ulcerated, and at some points concealed by fungous excrescences. The kidneys were enlarged and flaccid, especially the left, which contained a great quantity of pus, of the same quality and appearance as that in the bladder. The oval calculus was apparently the earliest formation, of a dark brown, compact texture. The remaining irregular and last formed portion was softer, in parts

* From a MS. of Mr. WATSON's in Mr. HEAVISIDE's Museum.

laminated, but mostly granulated, spongy, and of a light grey colour. It was presumed the brown oval calculus had first formed in the fundus of the bladder, the lighter coloured deposit forming the irregular portion having been a subsequent process; and that in the last fit, by some violent spasm at the fundus of the bladder, the calculus was displaced.*

270. Too much care cannot be bestowed upon keeping the bed dry as possible, for it now and then happens that the patient takes cold, and is lost by the accident. Mr. WATSON mentions a man, aged 58, a hard drinker, whom he cut for the stone after seven years of occasional distress; and extracted a mulberry calculus, the size of a large gall nut. The following day, the abdomen somewhat tense, the nurse fomented with cloths too wet, leaving his shirt, and bedding very wet; from which it was believed he took cold. On the morning of the fourth day he died, almost suddenly; having been very free from complaint the day before. On dissection, the right kidney, wasted to one-third its natural size, contained a tea-spoonful of pus. The left of its natural size, contained a little pus, and one very small stone. It had also several hydatids in its substance. The lower part of the omentum formed a scirrhus tumor, united to the fundus of the bladder. The bladder itself was sound; the vessels on its internal surface rather turgid. The wound looked well; neither was there inflammation of peritoneum, or intestines. The cellular membrane round the rectum was diseased, from a fistula in ano, which he had upon him, when cut. There was also a good deal of matter in the diseased cellular membrane, but none near the neck of the bladder. In this instance, however, although cold probably hastened the unfortunate termination of the case, it is doubtful whether his state of constitution, independent of such an accident, might have admitted of eventual recovery.

* Edinb. Med. Journal, vol. viii.

271. Where stone in the bladder has long harassed the constitution, circumstances extremely unpropitious for operating may be present, although unknown; most happy is it when, under this predicament, the intervention of some ill symptom spares the patient the misery of suffering, and the operator the distress of performing fruitlessly, so painful an operation. A child, aged seven years, was to have been cut for the stone; when the performance of the operation was prevented by a severe attack of fever coming on, of which the patient died. The calculus was however extracted by the operation, after death; it was so unusually large a stone, for the age of the boy, that it was even then with difficulty brought away. On opening the body, the kidneys, both diseased, were of a yellowish colour, and in parts of a steatomatous consistence; the right ureter very much dilated. A large tumor, formed by a quantity of blood collected and coagulated in the cellular membrane round the bladder, was found adhering to its fundus, filling up almost the whole cavity of the pelvis. A good deal of purulent matter had run out by the wound, with the urine, so that under all the circumstances of the case it is scarcely possible he should have done well, had the operation been performed.

272. The operation for lithotomy requires, in order to its being performed well, not only a steady skilful hand, but some degree of feeling, and every regard to tenderness and gentleness. I have myself stood by, many years since, while a surgeon attempted to cut for the stone a child of eight years of age; his nervous embarrassment every moment increased; he felt that he was foiled, yet would not consign the care of finishing the operation to another. The stone was not found; the child died in a day or two; and the body was not examined.

273. Gentleness is, however, almost as essential as steadiness; Mr. WATSON was present at the operation for stone upon a fine healthy boy, ten

years old. It was a tedious business, the bladder being very roughly handled, and the stone extracted at last with very great difficulty. The poor child endured it with a patience hardly to be expected, though he certainly felt very severely; more, it appeared, from the frequent introduction of the instruments, and their rough application, than any thing else. The stone, a flattened oval, partly smooth, weighed two ounces and two drachms. The next morning the boy had every alarming symptom, great tension of belly, pain, restlessness, vomiting, convulsions; during the forenoon he died.

274. Upon one occasion, however, it was Mr. WATSON's lot to witness a scene of this kind, more than commonly distressing. The patient a physician; the operator a distinguished hospital surgeon. *Aug. 21. 1790*, Mr. WATSON assisted at the operation for stone upon Dr. W., who for seven years had been afflicted with nephritic pains; for the last five years they were more violent; for the last three so intolerable, that by the advice of his friends he took all sorts of medicines, as solvents. At times he brought away small particles of stone, but continued nevertheless to suffer such torment that he determined to undergo the operation, let the event be what it might. Mr. WATSON had several times relieved him by drawing off his water, and thus had ascertained the existence of a stone. The operation was performed by Mr. * * *, with his double gorget; an ill-formed instrument, that makes but a small opening in the neck of the bladder, hardly dividing the prostate gland at all. The opening made by the gorget was so small, and the forceps so large, he missed conducting them into the bladder; but supposing they were in the bladder, the stone was searched after up and down, and all round in every direction, with a good deal of violence; but no stone was found, the forceps having passed between the bladder and rectum. After a long examination, it was given up; concluding there

was either no stone, or it was not to be come at. At length Mr. WATSON was desired to examine, who taking out the large forceps, passed his finger into a large cavity where he could feel nothing; but directing his finger to the prostate, found it partially divided, and then passed his finger into the bladder, and felt the stone. He then introduced a pair of long flat forceps, and engaged the stone, it slipped, but taking hold of it a second time, said to the operator, "Now I have hold of the stone, you shall extract it," offering him the forceps. "But" said the operator, "you can never extract it with those forceps;" and again taking the large forceps, they as before passed between the bladder and rectum; where of course they could not reach the stone, but much bruised the bladder between the forceps and the stone, as the blades stretched wide, were turned in every direction, very forcibly striking against all the soft parts. The patient, by this time much fatigued, was put to bed, in expectation the stone might present itself next day, more favourably, which was not however the case. No urine passed, by the wound, or penis, from the time of the operation, than which no symptom could be more alarming; a sure sign that if any came down into the bladder, it passed off some other way. He complained next day of pain in the stomach, and threw up his food and medicine; things became worse and worse, the pulse flagged, the extremities became cold, his voice failed, and he died on the 4th day after the operation.

On examination, the bladder was found lacerated in two places through and through, at its posterior part next the rectum, so that the urine had passed into the cellular membrane. But before the bladder was opened, Mr. WATSON introduced a common gorget, and upon that a pair of forceps, and took fast hold of the stone, but before he could get it out, was obliged to dilate the wound in the neck of the bladder, a little, with a scalpel, and

then it was extracted without much force. The calculus was of the size and form of a large walnut. *

275. Calculus, as already remarked, sometimes forms, without the patient being at all aware of its existence. An instance of this is mentioned †, by Mr. CHAPMAN, of Wandsworth, who took, by excision, from the bulbous part of the urethra, a calculus of pretty large size; though the man, having never felt pain or difficulty in voiding his urine, had not the least previous idea of being subject to stone. This gentleman has since kindly informed me that the stone, composed of oxalate of lime, is of the size and form of an unripe mulberry; weighing 18 grains.

276. The urinary bladder, under peculiar difficulties, occasionally evinces extraordinary powers, like most other parts of the human body, for relieving itself, in calculous, as well as in other kinds of disease. A case is recorded by Dr. FREWIN, of a patient, aged 76, who after the usual symptoms of stone, and for many months a tumor in the perineum, which prevented him from sitting up out of bed, was relieved by the skin giving way, from the lacerated part of which fell a calculus, weighing above six ounces; after which, the patient recovered. ‡

277. A particularly interesting and curious case is related by Mr. MACKARNES, illustrating in a very extraordinary way, the extent of mischief that may sometimes be sustained, without material injury to the ultimate powers and functions of parts. A healthy woman had three children born, with a large and deep depression on the side of the head. Two months after the last lying-in, fever, violent pains in the loins, back, and neck of the bladder, came on. She was bled, purged, and directed in-

* From a MS. (No. 9.) of Mr. WATSON's, in Mr. HEAVISIDE's Museum.

† Med. Chir. Trans. vol. xii.

‡ Phil. Trans. vol. lii.

jections. Still disposed to costiveness, the fæces came away, flattened like the leaves of houseleek. Thus she went on for months; when the urine became foetid, and slimy. Opiates alone, relieved her pain. The urine, with foetor intolerable, now contained purulent matter, in great quantity, as from an ulcer in the bladder. A catheter was passed, and a hard swelling perceived above the left groin. After some time, and much distress, the foetid and purulent discharge was transferred first to the vagina, and then to the rectum and anus; and she now complained of a prodigious weight; and having suffered for six months in this way, she frequently had bloody stools, once to a profuse quantity. One day, straining hard on the night-chair, she thought she felt a hard substance ready for expulsion. She sent for her neighbours, who found a hard substance laying against the sphincter, so large and rugged, that it tore one of the women's fingers, and made it bleed. A surgeon sent for, broke some of it off, but was forced to dilate the opening of the bowel before he could extract a calculus eight ounces and a half in weight, and ten inches and a half in circumference. From that moment, the woman became easy; the wound healed, and she recovered perfectly. *

CASE 23.

Mulberry Calculus, adherent to the Bladder.

A YOUNG man, who was cut for the stone, at the age of 24, had, from childhood, been subject to uneasiness and pain in passing his water, which, for many years, had occasionally deposited a red sand. In 1800, he consulted Mr. HEAVISIDE, who, from the symptoms, believed there was a stone in the bladder. A sound was passed, and the stone felt. His habits were frequently intemperate, and he was sometimes inconvenienced by slight

* Phil. Trans. vol. xli.

asthmatic attack; in other respects, his health was good. He underwent the operation, *February 15. 1800.* On cutting into the bladder, Mr. HEAVISIDE found the calculus firmly adherent to its cavity near the neck; this adhesion, however, was, by degrees loosened, and the stone extracted.*

The calculus, which was of the mulberry kind, was the size of a chesnut; upon the hard, uneven part of its surface was attached a soft white substance, which had formed the medium of adhesion, and which, from its appearance and texture, was evidently coagulable lymph, effused as the accidental consequence of preceding irritation.

The young man recovered perfectly from the operation, and lived thirteen years afterwards, free from any return of the disorder. Latterly, much addicted to drinking, his asthma increased, and of this he died in 1813.

CASE 24.

Singularly large Calculus, voided spontaneously.

AMONG other specimens in a collection of near 400 urinary calculi, in Mr. HEAVISIDE's Museum, is a concretion of very considerable magnitude; remarkable from its appearance, but more so from the circumstances of its history.

It was formerly in the possession of Mr. WATSON, whose memorandum states the calculus to have been received, with the following particulars, by Dr. GRAY, from Dr. ALONZO DE CAVALLO, a physician at Lisbon; he received it from his brother, a surgeon at Bahia in Brazil, at which place it was voided, without any medical assistance, by an old black woman. Previous to its coming away, she had for some time suffered excruciating pain, and remained ever after subject to incontinence of urine.

The calculus is of an irregular oval figure, and

* PLATE III. *Fig. 1. and 2.*

weighs four ounces six drachms, troy weight. Its section exhibits a loose friable texture, made up of a small proportion of the phosphates, with a large quantity of mucous matter, forming the nucleus of the stone, round which, successive courses of the phosphates have been laid. Latterly, it appears the calculus had taken up some comparatively fixed place of abode in the bladder, in consequence of which, the stream of urine constantly making its way over one part only, had given rise to a partial accumulation or growth, upon one of its sides. It appears probable, also, that the large spaces between the masses forming the external part of the calculus must have been owing to the particular consistence of the mucous matter at these points, around which the phosphates were deposited. *

An interesting account of a large calculus, voided in a similar way, has been published by Dr. YELLOLY. †

CASE 25.

Stone in the Bladder.

A GENTLEMAN, at the age of 67, consulted me, in 1820, for symptoms indicating the presence of calculus in the bladder. He had, for the last 30 years, been subject to red gravel, especially after any journey, or shaking in a stage-coach, when he discharged near a tea-spoonful at a time. When still and quiet, these attacks were less frequent and severe. Of late years, he had become subject also to a white-coloured gravel; this he had observed but rarely; but once, in particular, he felt something sharp passing, and watching, he found it in the opening of the urethra; it was white, larger than a pin's head, and like a fragment of chalk.

For some years past, subject to bloody urine, he had occasional fits of difficulty and extreme pain

* PLATE III. Fig. 3.

† Med. Chir. Trans. vol. vi.

in voiding it, especially in frosty weather. The pain, just after the effort to pass water, was most severe, and sometimes altogether useless; and yet he had no power of retaining it, during the spasms. Several years since, he had, while heated with exercise, drank very stale beer, at a country inn, which produced pain, and so much swelling, that he thought he should have died; with difficulty, some aperient medicines were made to operate, to his relief. Several months after this, he had retention of urine, after brisk exercise. A surgeon of some reputation, passed an elastic catheter, but found little water. By means of the catheter, a calculus was distinctly felt, which was said to be rough upon its surface. Finding he was subject to stomach complaints, and costiveness, I enjoined him to observe temperance, and directed him an aperient mixture, which he took for some time, with great benefit; but his habits of full living, and excessive eating, his family regarded as evils they were sure must be much against him, and of the consequences of which they were much afraid.

Oct. 9. 1822. This gentleman being in town, requested me to call upon him. I found that for the last twelve months, he had been less able to take exercise than before, and more subject to severe distress from his complaints. A year or two back, the paroxysms would last only an hour; now they continued several hours; during which he could not lay down for severe pain in the right loins. This pain seemed to pass through the hips, producing what he had for years considered to be a rheumatic affection of his hip, knee, and leg, with lameness and retraction of the limb.

During the attack of distress, he had desire to pass water every five or six minutes, which returned, even when the attempt was not made, blood passing generally, but not always. With some difficulty, he allowed an examination to be made by the rectum, although the idea of it threw him

into a violent tremor. The prostate was very distinctly felt, and beyond it, the softer feel of the coats of the bladder; but I could not perceive any sensation of a calculus, or of any hard substance; so that the stone could not, in all probability, have been of a large size. I directed an aperient draught, combined with the volatile tincture of valerian.

Oct. 10. The medicine had operated four or five times, so much to his relief, that he said he had not felt so well as now, for many months. I desired the medicines might be continued, so as to preserve regular and free action of the bowels; repeating at the same time, my former injunctions, with regard to diet.

SECT. V.

On Irritable Bladder.

278. AN intimate and complete acquaintance with the minute, as well as general, anatomy of the urinary organs, will furnish the only ground upon which we can explain the various symptoms and sympathies that take place in the diseases of these parts.

279. By the light of anatomy, we are enabled to perceive on the one hand, that the nerves distributed to these organs, are extremely numerous, though small, and that, in addition to this, there is yet another provision for sensation and sympathy, in the lateral connections, formed by the ganglia of these nerves with each other; while on the other hand, a very general source of sympathetic feeling, in one part for another, is a similarity of structure in the two parts, and in some cases a continued line of similar organization between the two sympathetic points, however remote they may be.

280. This law or principle of action, may be said to be almost universal; it seems to depend

principally upon the particular measure of sensibility and irritability originally assigned to each peculiar structure, in the animal economy; in consequence of which, any impression received upon one membrane is more readily capable of transmission, or in other words, more apt to be translated to some other membrane, than to any other series of parts, of which the body is constituted. It exhibits a striking instance of a certain unison of feeling, if the expression be allowed, that may be traced more or less distinctly in most of the beautiful and interesting operations of nature.

281. The symptoms that attend an irritable state of the urinary bladder, are subject to much variety, dependent on the varying nature, and intensity of the cause. Irritable bladder is, however, constantly productive of more or less constant, or occasional uneasiness, about the region of the bladder, generally with increased frequency in making water; often attended with an excessive discharge of mucous or albuminous matter, from the inner membrane lining that cavity, and a fatiguing anxiety to pass urine. Sometimes the foregoing symptoms are connected with the most urgent tenesmus and straining, so much aggravated in the expulsion of the last drops of water, that the turgid vessels upon the membrane lining the neck of the bladder, occasionally give way, and hæmorrhage follows.

282. A degree of irritation in the bladder is an occasional consequence of external violence, or wound. Experience has also shown that wounds or ulcers (Case 54.) penetrating through the coats of the bladder, and communicating with the cavity of the abdomen, are almost invariably fatal; and it has therefore been generally concluded, that all wounds of the bladder, are mortal. This, however, is far from being the case, as regards gun-shot wounds; and even in those that arise from contusion, laceration, or incision, the patient sometimes fortunately recovers. A case in which a musket-

ball struck the groin, passing completely through the bladder of urine, and making its way out by the opposite buttock, is related by Mr. DOUGLAS. The course of the wound was demonstrated, by the flow of urine and blood by the groin, by the passing of blood by the urethra, and for some time by the passing of urine by both wounds. In the course of the treatment, a splinter of bone, near an inch in length, found its way to the orifice of the urethra, and was removed. In the course of four months, the wounds had healed, and the patient perfectly recovered.*

283. An instance of complicated wounds of the perineum, rectum, urethra, and scrotum, mentioned by Baron LARREY, was followed by twenty-one days' confinement of bowels. As repeated injections and other means failed, the rectum was examined, and found loaded with a large mass of indurated fæces, which, it was evident, must have kept up much irritation in the parts around, and which, with pains and perseverance, was broken up and removed, when the watchfulness, fever, and every other bad symptom immediately gave way, and the patient recovered.† M. LARREY details several such cases, and says, many more occurred, where gun-shot wounds proved to have passed through both the bladder and rectum, by the passage of the contents of both cavities, by the openings, did perfectly well; and that without leaving fistula. He observes that General BON was the only instance to the contrary, owing to the wounds not being allowed to be freely scarified, and to no elastic catheter being kept in the bladder, from which omission, the urine occasionally escaped into the cellular membrane, inducing gangrene. In one case, a wound received from a Cossack's lance, passing across the groin, over the brim of the pelvis, into the bladder, urine flowing by the wound, and blood

* Edinb. Med. Jour. vol. xiii.

† Chir. Militaire, tom. iii.

with urine by the urethra, was followed by supuration and abscess in the course of the wound ; but by the aid of the elastic catheter kept in the bladder, a counter-opening made at the groin, proper dressings and constant attention, he perfectly recovered. *

284. The bladder will, under favourable circumstances, recover from very extensive injury ; in one instance, this was proved by a severe laceration, in a man tossed by a bull. The wound was at the groin, the horn entering under the femoral ligament, and tearing the bladder, which was full of urine. The inner membrane of the bladder, however, remained entire, and formed a membranous pouch, presenting a herniary tumor under the crural arch, as large as a pullet's egg. The external wound was first enlarged, to bring the protrusion fairly into view ; an elastic catheter next passed by the urethra, to empty the bladder ; and lastly, the membranous tumor by degrees was reduced into the abdomen. By quietude and care, the man perfectly recovered. †

285. Sometimes a musket-ball, lodged in the bladder, will, after a very long interval, become troublesome. M. LARREY mentions a German soldier, wounded by a musket-ball, passing through the sacrum and rectum, into the bladder. The wound healed in a month, during which time, when he changed his position, he felt something roll and move in his bladder. Occasional sharp pain about the pelvis, remained after the healing of the wounds ; but he gradually lost the feeling of any thing lodged in the bladder. Ten years afterward, a calculus was felt by the physicians, at that part of the neck of the bladder traversed by the wound, and the stone, the size of a small pullet's egg, which was removed by the operation for lithotomy, contained the ball in its centre.

* Chir. Militaire.

† Chir. Militaire.

286. In another case of a similar nature, the ball was also felt to roll about in the bladder. An officer was wounded, and the ball felt by the sound. M. LARREY performed the operation for lithotomy, and removed the bullet, on one part of which, a small fragment of bone was found, one of its sides being covered with a layer of blood, the other with a calculous deposit. The wound soon healed, and in a month, quitting the hospital, he joined his regiment. *

287. Where an extraneous body induces considerable irritation; whether this results from the figure of the substance, or state of the constitution, ulceration may take place; and in this way the parts may be relieved, by allowing the escape of the irritating body. Such cases however, to be understood, ought to be regarded with careful and close attention, otherwise their true condition will sometimes remain unknown, till assistance comes too late. In one instance, a woman, for the relief of colic pains, was persuaded to swallow two leaden bullets, one of which, incrustated with a coat of yellowish-red gravel, was, after much irritation and straining, expelled by the urethra, fifteen years afterward. † In another, more serious, mentioned to Mr. WATSON by Dr. ADEE of Oxford, a gentleman was to have been cut for the stone, by a surgeon who had sounded, and, as he thought, had both felt, and heard, the stone. This gentleman had a fistulous complaint some years before, supposed to have left an ulcer, that drained the constitution down to a hectic state, which was one reason for the Doctor's insisting upon his not submitting to the operation; besides which, he had lately voided the pips and kernels of apples and pears with his urine, a convincing proof of a communication between the bladder and rectum. He died soon after, and on opening the bladder, the ends of some chicken bones, he had swallowed, were found within its

* Chir. Militaire.

† Phil. Trans. vol. ii.

cavity ; these were the bodies struck by the instruments, deceiving the surgeon. They had evidently passed from the rectum by an ulcerated opening that still remained, from the bowels into the bladder.* There is no doubt on my mind that these bones were the source of all the patient's sufferings ; and it seems equally clear, that by a timely examination of the bowel, they might have been detected, and removed, so as to have prevented his subsequent misery and death.

288. In some instances, the constitution appears to be peculiarly prone to run into this ulcerative process ; in which case, events similar to the above, may take place, independent of the operation of any very hard substance, as an exciting cause. Mr. YONGE mentions a man, long subject to violent attacks of spasmodic pains in the bowels, who, after a severe fit of pain and distress in the lower part of the belly, with costiveness, spasm, and flatus, found he passed particles of his undigested food with his urine ; this state continuing for the rest of his life, a period of eight months.† Mr. HILL, also, relates that a patient of his, a middle-aged lady, from extreme neglect of bowels, had, in spite of remedies, no passage either by stool or urine, for the space of eight days, during which period, she suffered from great swelling of the belly ; with most excruciating pain, and almost incessant vomiting. After this, she discharged some urine, mixed with a considerable quantity of fæces. She then had a stool, and the swelling of the abdomen gradually subsided. More distressed by the frequent involuntary escape of wind, than even by the passage of fæces with her urine, she lived about three months ; when, from returning tumor of abdomen, she died.‡

289. In such cases as the above, it will be generally easy to ascertain the exact state of the

* From a MS. in Mr. HEAVISIDE'S Museum.

† Phil. Trans. vol. xxvi.

‡ Med. Commentaries, vol. ii.

complaint. If the bladder has been wounded, or if, in addition to wound, some extraneous body has been lodged within it, the fact will usually admit of being determined with precision. By the introduction of the sound, we may generally reach and distinguish any hard substance lodged in the bladder, and should that substance have made its way forward from the rectum, the relative structure and position of the parts will almost ensure such opening of communication being formed sufficiently low down to be within reach of the finger. An examination, *per anum*, will readily perceive any projecting point of bone, or other hard substance, the end of which may, perhaps, still remain sticking in the coats of the bowel, and which, with little pain to the patient, or difficulty to the operator, may be extricated, and quietly brought away. These points of argument I have, however, more fully developed and illustrated elsewhere.*

290. A troublesome degree of irritation in the bladder will arise, now and then, from cold; but this is by no means an ordinary occurrence. Under these circumstances, the principal care must be to determine well the nature of the cause, which being known, reveals the probable facility with which the complaint may be removed. (Case 26.) A much more common, and indeed one of the most frequent, causes of irritation in the bladder, is a disposition to deposit gravel in the urine, the symptoms connected with which disposition, have been already pointed out in the section that treats upon the appearance of gravel in the urine.

291. Few difficulties, in medical science, exceed that which occasionally attends the forming a perfectly accurate definition of a disease. The truth of this position must be felt by every observer disposed to prefer the simple truth of nature to the studied, and sometimes false appearances of art. It was

* *Pract. Observations on the Diseases of the Lower Intestines and Anus.* Last edition. Longman and Co. 1821.

necessary to enumerate the most usual symptoms of irritation in the bladder (281.), while I am conscious of having sometimes met with cases very imperfectly answering the description; although they have more nearly resembled that, than perhaps any other complaint. Under this difficulty, I have been induced to consider as an instance of partial irritation, a disorder in which the bladder would frequently contain as much as one, or even two pints of urine, very quietly (Case 28.); notwithstanding which, it was of so troublesome a description, as generally to preclude the patient from going into company.

292. Symptoms arising from very partial irritable affections of the inner coat of the bladder, sometimes give rise to much diversity of opinion, where, notwithstanding, the subsequent welfare of the patient mainly depends upon his following the right opinion at last, in the selection of those principles upon which his future treatment must be conducted. Should, under these circumstances, particular appearances occur in the urine, they will, to the eye of attentive observation, materially elucidate the facts of the case; but these also, are open to misconstruction, effects of partial irritation being set down as direct evidence of ulceration. In one such instance I was so happy as to find the opinion I had formed of the disease was, nearly as possible, the same with that of Dr. BAILLIE, who had been consulted upon the same case, much about the same time.

293. Sometimes the most permanent and most distressing affections of bladder, occur in connection with irritability. Affections of all others most lamentable, from their being incident to that period of life which is most interesting, and from their progressively harassing and chasing the unfortunate sufferer out of the possession of every comfort and enjoyment, while they occasionally derive even additional severity from the fearful consideration of

their having little direct tendency to shorten life. Of these affections, which in their history always appear to rest on a peculiar foundation, one instance was attended with much pain (Case 30.); and another was also most distressing. (Case 29.) In a third, a gentleman of the brightest promise in one of the learned professions, consulted me for an affection of sight, for which he had previously been long and largely depleted under the care of surgeons, and oculists, of eminence. No visible external change existing, directed my attention more particularly to the history. His complaint, which very much disabled him from, applying to night study, almost threatened eventual loss of vision. Happily his constitutional health and vigour was yet not essentially impaired; which fortunate circumstance enabled him to bear with perfect ease, and to derive infinite advantage from, the tonic system of treatment; which although the only plan that in such cases appears to me deserving of confidence, is frequently from adverse circumstances incapable of being followed up with much effect. The extreme obstinacy of such cases, even where they eventually do well, is partly explained by the state in which the parts are found after death; demonstrating great relaxation and enlargement, even to a varicose state, of the local venous system. (Case 30.)

294. A painful and irritable state of the neck of the bladder, with sympathetic affections of other parts in its immediate neighbourhood, are occasionally connected with disease in the prostate gland; and though such affections are of unusual occurrence, they always deserve the most serious regard, from the extreme distress with which they are attended. (Case 29.)

295. Irritable bladder, when it is the consequence of disease in the uterus, vagina, or rectum, will be almost entirely dependent on the nature and progress of the primary complaint. Some ex-

tremely interesting and unusual examples of sympathetic affection of bladder, from organic disease in the lower part of the intestinal canal, have been recently detailed in another place.* Where from some complaint in the womb, the substance of that organ falls into ulceration, the same tendency not unfrequently extends itself to the coats of the bladder; in which case it generally happens that the increased severity of irritation to pass urine incident to the progress of ulceration, experiences material relief, upon some violent effort of straining being suddenly followed by incontinence of urine; a change produced by what remained of the coats of the bladder at the point of ulceration having at length given way. (Cases 32. and 33.) These are always distressing complaints, frequently requiring more than all the efforts of medicine or surgery can accomplish, to remove, or sometimes even relieve. In some cases external violence may contuse and injure without lacerating the coats of the bladder; when this happens, ulceration may give rise to the same consequences just described.

296. An interesting case is related by Mr. NORRIS, where irritation in the bladder from an affection of prostate gland, produced the most uneasy and distressing consequences. An external tumor, formed near the anus, was poulticed, and opened, discharging copiously a glutinous sanious fluid, which was thought to come from the vesiculæ seminales. The patient perfectly recovered.†

297. The coats of the bladder sometimes become subject to spontaneous disease. When the inner membrane alone is thus affected, it commonly exhibits either effusion, ulceration, or circumscribed tumors, generally prone to assume, sooner or later, the characters of fungous disease. An instance of this, connected with extreme irritation from gravel,

* Pract. Observ. on the Diseases of the Lower Intestines and Anus. Last edition.

† Trans. of the Med. Society of London.

will be presently related; and Mr. WATSON mentions opening the body of a middle-aged man, whom he sounded in his lifetime for stone, but could find none. He had, however, the symptoms of stone, and frequently passed bloody water, especially for many days before death; which took place from inflammation in the bowels. On examination, the left kidney was small, extenuated, and internally formed into loculi, but containing neither stone nor gravel. The urinary bladder was flaccid, and almost empty. On cutting it open, "it was full of fungous tubercles." The prostate gland was greatly enlarged and indurated.*

298. A strongly marked instance of this disease I met with in a female advanced in life (Case 34.); the symptoms were those of severe irritation, connected with hæmorrhage. The diseased parts are preserved†; and exhibit an interesting specimen of circumscribed fungous tumor. A preparation of a similar kind in the Museum of the Royal College of Surgeons, is that of a relaxed, diseased, and hæmorrhagic bladder, from a man. The inner membrane and muscular coat, particularly towards the fundus, almost entirely destroyed; at which part the peritoneal covering is absolutely diaphanous and transparent. A considerable quantity of the previously contained fungous masses (coagula in the catalogue) are lying loose at the bottom of the glass.

299. A most terrible case of this disease, in a woman, is related by M. LE CAT; in which, after long suffering from pains in the back and loins, symptoms of irritation with pain in the bladder, supervened. These symptoms were referred to stone, but the sound gave no satisfactory evidence of its existence; only bringing away blood, in proportion to the freedom of examination. The ob-

* From a MS. in Mr. HEAVISIDE'S Museum.

† In Mr. HEAVISIDE'S Museum.

struction from soft bodies attached in the bladder was felt by the instrument, and their nature was evinced by the considerable bleeding. M. LE CAT, urged by the extreme pain and frequent hæmorrhages, determined to attempt the removal of the disease, by cutting into the bladder, hoping to discover and take away the stone, if one existed; or at least to remove the fungous excrescences, the existence of which had been pretty clearly ascertained. No stone was found, but several clusters of excrescences were felt, one of which was of firm texture. Many of these were extracted with the forceps. On the eighth day after, the operation was repeated; he found no stone, but pulled away several more clusters, and tops of fungi, crushing the rest. The patient suffered excessive pain, and violent fever followed, of which in two days she died. The object, in these operations, was to bring away or destroy the fungous disease within the bladder, but the extreme irritation produced was such as to prove the impossibility of success. M. LE CAT, with a laudable zeal for the relief of suffering humanity, as well as for the improvement of his profession, afterwards contrived cutting forceps, which, conveyed into the bladder, might more effectually remove such diseases; but it appears to me there is little chance of operating with advantage in these diseases. *

300. Irritable bladder has in some few instances been induced by the growth of hair within its cavity. The source from whence this substance has been derived, having generally remained doubtful, it was natural to suppose it most probably originated in disease of the inner membrane; but in several instances there appears to be ground for believing, that it has sprung from some calculous deposit, previously formed in the bladder. Several instances of hair voided by urine are mentioned

* Phil. Trans. vol. xlvii.

by Sir HANS SLOANE; one particularly of a brewer, who suffered from the occasional passage of long hairs, matted or woven together; passed with great pain, but with little or no calculous matter attached to them. Mr. POWELL relates the case of a middle-aged lady, who after being teased with disordered stomach and bowels, and the evacuation of whey-coloured and foetid urine, passed little masses of hair, mingled with a peculiar viscid mucous substance, and partially crusted with calculous matter. The extrication of these substances was attended with aggravation to the distress and pain in the bladder, from the urine bringing them into contact with the orifice of the urethra. This complaint, which continued long, incurred great weakness, and total loss of flesh.* Dr. WALLACE also met with an instance in which hair was several times voided with the urine; and on the body, after death, being examined, a stone was found in the bladder, large as a goose egg, from some parts of which hairs had grown out. It was thought that the hairs voided during life, which were a great many, and some of an extraordinary length, grew out of that stone; because when the hairs hung out of the urethra, as they frequently did to his great torment, they were obliged to be pulled out, which was always done with a resistance, as if plucked out by the root.†

301. The coats of the urinary bladder, or as it appears to me, the cellular texture connecting the muscular coat to the inner membrane, has sometimes become the seat of fungus hæmatodes, but this is a very rare occurrence. Of this affection, which always connects itself with the most distressing symptoms of extreme irritation, I have only met with two instances. One of these I attended during its progress (Case 36.); the other was that of a lady, at the turn of life, who after seeing several physi-

* Phil. Trans. vol. xli.

† Ibid. xxii.

cians and surgeons of high eminence, placed herself a short time before her death under Dr. HOOPER's care ; from whose prescriptions she derived infinite comfort and relief from pain and irritation ; although the progress of the disease could not be arrested. This lady had been longer ailing than the patient I attended, the progress of the disease having been much slower. In both cases blood passed with the urine, but in Dr. HOOPER's patient this appearance came on later, than in the case I had attended ; neither was there, in the former, external tumor in the seat of the bladder, which tumor was a distinguishing character in the latter. In other respects the symptoms, in both cases, were exactly alike. On examining the body, the appearances in Dr. HOOPER's patient were less striking than in the case I had attended, but in essential points they were much the same. In volume, the tumor of the bladder was about half as large as that I had before met with, neither was it projected so forward, or so extensively adherent to the pelvis, which prevented its being felt through the parietes of the abdomen. The disease in the one case extended upwards by the iliac and lumbal glands ; in the other it had affected only those situated laterally towards the sacro-ischiatic openings.

302. The treatment best adapted for the relief of irritable bladder, will require an attentive regard to the constitution of the patient ; and also to the influence of the local or exciting cause of irritation, if such exist. Irritation so frequently, and sometimes so suddenly, runs on into positive inflammation, that a state of security, by relaxing the vigilance of attention, is always in these cases a state of danger to the patient.

303. Where external violence, with injury, laceration, or wound of the bladder, has given rise to irritation, the usual means for preventing or relieving inflammatory action, must be assisted by the most perfect quietude and constant attention to

prevent accumulation of urine, by wearing an elastic catheter, and drawing off the urine at regular and short intervals.

304. Where a musket ball or other extraneous body of moderate size, is lodged in the bladder, exciting such irritation as to require its extraction, this is generally effected by performing the common operation for lithotomy; provided, however, there is reason to believe the bladder otherwise healthy; its power of expansion being considerable, I should feel disposed to prefer a more quiet and less dangerous mode of operating. With this view, the patient kept quiet in the horizontal position, and requested to drink largely of diluents, the urine retained as long as possible by the voluntary powers, should then be prevented passing, by a small soft compress in the hand of a steady assistant, kept quietly applied upon the urethra, pressing it against the inferior margin of the pubes, just sufficiently to prevent the flow of urine. By this means, with an occasional opiate, if necessary, to diminish uneasiness from distention, the bladder may be brought sufficiently high; and when the tumor is well defined, the integuments may be divided in the direction of the linea alba, above the symphysis pubis, and an opening then made into the bladder, as in puncturing above the pubes for retention of urine (Case 62.); when under the direction of the finger first passed, a pair of light forceps may be introduced, and when the instrument fairly embraces its object, the finger slowly withdrawn, the extraneous body may be immediately removed.

305. The opening required in this operation must, however, be sufficiently free to prevent any necessity for bruising the bladder in the extraction; and as the time for providing a safe and free wound is while the peritoneum is kept high up by the full bladder, the division through the linea alba may be extended to an inch in length, and the muscular coat of the bladder may be then gradually divided

to the same extent, so as to expose the inner membrane, cautiously avoiding wounding it until the whole intended line is laid bare, when the upper point being cut through first, the opening may be extended sufficiently far downwards towards the pubes ; the operation being then finished, as above described.

306. By this mode of operating, the great danger of serious inflammation, from the extent and complicated nature of the parts wounded ; and the sometimes still greater hazard from excessive hæmorrhage, will be entirely avoided.

307. Should the irritating substance have found its way from the cavity of the rectum into that of the bladder, the most careful examination of the bowel should be made ; and the state of the parts, and peculiar circumstances of the case, will readily suggest what is most expedient to be done for the removal of the cause, or relief of the consequences, of the accident.

308. Where symptoms of irritable bladder proceed from cold, the common remedies for slight feverish indisposition, assisted by rest and quietude, will soon remove the attack. When these symptoms proceed from a tendency to gravel, the treatment must depend entirely upon the peculiar diathesis, as explained in the section upon that subject.

309. Cases of chronic inflammation partially affecting the mucous membrane of the bladder, are productive of so much variety in their attendant symptoms, and require so much consequent variation in the principle of treatment, that it becomes extremely difficult to lay down any general rule for their management. The instances of this kind of affection given (Cases 27. and 28.), will perhaps, considered with attention, afford more instruction than any comment that might be added here.

310. In irritable states of bladder, with excessive excitability of the generative organs, consequent upon habits of preternatural irritation of—the

parts, the single principle is to restore tone to the constitution ; and in proportion as general strength is raised, excess of local irritability will generally be diminished. The application of the means, however, must be of course adjusted with care, so as to meet the peculiar circumstances of each particular case ; and the use of bark, steel, and the cold bath, the observance of a plain unstimulating yet nutritious diet, with habits of early rising and regular exercise, will all go into the general account ; although in almost every instance will each of these means require to be variously adapted and applied, in order that they may conduce most effectually to eventual recovery.

311. The constant distress and wearisome irritation frequently attendant on these complaints are only equalled by the great obscurity that occasionally conceals certain features of their history. It seems peculiarly unfortunate, and not easily explicable, that a merely sympathetic irritation in the urethra, should not only deceive a very intelligent professional patient into the conviction of his having strictures, but that this conviction should have equally fettered the decision of every one of many medical friends ; and should have even led to the application of caustic. It may, however, convey a most useful precept, in serving to show the importance of coming to the consideration of every case unbiassed by any opinion whatever, either of the patient, or his previous attendants ; for it cannot be supposed that such an error could have so long remained undetected, as happened in one particular instance (Case 29.), had each of the surgeons who passed bougies taken the trouble to judge for himself.

312. Irritable bladder from diseased prostate gland will usually give way to those means conducive to the relief of the primary affection. Local depletion, by leeches to the perineum, or cupping-glasses to the loins ; occasional immersion in the warm bath ;

constant attention to the bowels; and in certain cases the preventing over-distention of bladder, by wearing an elastic catheter; all these means may prove highly beneficial. In particular cases, however, all these means fail, and peculiar symptoms require other modes of alleviation, such as may be afforded by opiates, the preparations of conium, hyoscyamus, and other sedative and antispasmodic medicines.

313. Where irritation in the bladder is produced by disease in the rectum, uterus, or other neighbouring parts, the object is first to ascertain as precisely and perfectly as possible, the seat, extent, and habits, of the primary disease; and then to proceed to such treatment as it may require; for when the primary affection gives way, symptoms induced by sympathy most frequently decline spontaneously. Should such irritation, however, terminate in ulceration (295.) the alleviation of pain and distress, seems to be all that can in general be expected, either from medicine or surgery.*

314. The urinary bladder, subject to occasional injury from external violence, has sometimes suffered from bruise; but wherever I have known such cases end unfortunately, it has almost always happened from early neglect, either in the patient, or his attendants. By timely attention to rest and quietude, repeated local bleeding while pain remains, constant regard to gentle laxity of bowels, the direction of proper medicines, and a restricted diet, those ill consequences may be averted, which under neglect, might be reasonably apprehended.

315. Where irritation is the consequence of ulceration of the inner membrane, or where it depends on fungoid or cancerous disease of the coats, of the bladder, it is extremely doubtful whether any means are capable of affording relief, beyond the mere alleviation of present distress; which alleviation

* See PLATE II. *Fig. 2.*

may generally be obtained by the administration of anodyne remedies, and in extreme pain perhaps the application of leeches ; added to the other ordinary means for preserving or restoring a kind of balance, among the healthy functions.

CASE 26.

Irritable Bladder, with Partial Retention ; from Cold.

A MARRIED man, aged 40, sent for me on the evening of *Dec.* 19. 1820, having had considerable pain and difficulty in passing his water, since the preceding day ; after sleeping quietly through the night, he had been disturbed every half hour all day ; with much pain and urging towards the close of the act, when a little blood was expelled. There was decided tenderness, on pressure, above the pubes. He stated that he knew of no cause for this, unless it was a cold he had felt some days about his body and limbs. The pulse and tongue unaffected, I directed an aperient, night and morning.

Dec. 22. One day, the bowels being neglected, the symptoms increased. At this time, however, the body being open, he felt much better. The tenderness on pressure was gone, and the frequency and pain in voiding urine much diminished. The turbid urine deposited a reddish-white cloud, several minute coagula of blood subsiding to the bottom. The aperient medicine was continued, and he was enjoined to remain quiet in bed, drinking occasionally of some mucilaginous decoction.

Dec. 23. Instead of being up, as on the night preceding, six or seven times to pass his water, he had slept soundly till morning, and to-day passed it more freely and less frequently ; the sediment much diminished.

Dec. 24. The tenderness, pain, and frequent desire to void urine, returned from taking a fresh cold, when suddenly obliged to leave his bed. He now also felt frequent pains darting along the

urethra in passing his water; and complained of increased pains about the loins and thighs. The pulse, tongue, and skin natural, I desired him a saline and ætherial mixture, at short intervals; repeating the aperient medicine occasionally.

Dec. 26. The bowels relaxed, and symptoms relieved. The tenderness about the bladder nearly gone; and scarcely any remaining uneasiness in passing the water. The urine clear, was passed three times to-day, and twice during the night.

Dec. 30. A purulent discharge from the urethra now made its appearance, with total relief to what remained of the other symptoms. This discharge, after continuing for a fortnight, subsided spontaneously, leaving him in every respect perfectly and permanently recovered.

CASE 27.

Peculiar Symptoms from Partial Irritability of the Bladder.

Dec. 11. 1820. I was consulted by a general officer in the army, aged 60, for a peculiar and painful uneasiness about the root of the penis, which came on suddenly, and generally urged him to pass his water, although doing so did not relieve him. It first commenced two years before at Brighton, where, without advice, he in six weeks rubbed in nearly a pound of mercurial ointment; which neither affected his mouth, nor relieved his complaint.

Returning to town, a surgeon directed blue pill occasionally for four months, when the symptoms unabated, he discontinued his attendance.

It appeared that the power of retention was generally good; he frequently passed one or two pints of water at a time, without previous or subsequent uneasiness. The bowels were habitually regular and relaxed, but when their contents were solid, no uneasiness was excited. The complaint, a combined sense of heat and of pain, was generally seated

in the root of the penis, now and then passing backward to the anus; in this latter part, however, he never had any swelling, or other complaint, in his life. A venereal disorder he once had, fifteen years back; said he had thought the present symptoms were of that kind, adding that he certainly had felt less than usual from them, during the use of mercury. He had, however, been assured this was not the case; which opinion was perfectly in unison with my own conviction. I directed him a medicine, containing opium and æther.

Dec. 20. The above medicine had procured some temporary relief. The pain was now described as sometimes beginning in the glans penis, passing thence backwards, in the course of five minutes, to the anus; without seeming to stop or settle at the point where it originated. The urine still passed with its accustomed freedom, although sometimes the pain brought on so sudden a desire to empty the bladder, that he declined going into company; yet if obliged to resist the desire, it would sometimes go off without being attended to. I this day directed him an anodyne combined with a light tonic.

It appeared to me from the first, that permanent relief might very probably be obtained in this case by inserting a small issue in the neighbourhood, a suggestion which required some little consideration. I had intended to mention and strongly recommend this measure, upon his next visit; but I believe he soon left town, as I had not the pleasure of seeing him again.

CASE 28.

Irritable Bladder, with Partial Retention, and Supposed Ulceration.

August 18. 1820. I was consulted on behalf of a gentleman, aged 30, residing at Preston, in Lancashire. In *September 1819*, he became troubled

with frequent desire to make water, preceded by pain in the urethra, which pain continued after as well as during the time of his voiding it. These symptoms increased for some weeks, when he was relieved upon the discharge of a thin portion of coagulable lymph. He remained easy for several weeks, and then the same symptoms returned with greater violence, continued some weeks, and were suddenly relieved as before, by the discharge of a solid but thin portion of lymph from the urethra, of the diameter of a large pea. He continued well for a month, when the pain returned more severe than ever, with a sense of smarting in the glans penis. This torture was relieved by passing a third portion of concreted lymph, larger than either of the former. After this discharge, the pain never returned to the same degree as before, although it had continued, more or less, ever since.

The urine rendered in the first attack contained many small portions of lymph floating in it, which, by standing, settled into a white mucous sediment. Latterly the urine had become more clear, depositing little or nothing; though occasionally it was milky, with a sediment appearing like gruel. The urine never contained blood, or gritty matter.

In *Jan.* 1820, the bladder, moderately full of urine, was sounded, but no stone found. The operation had not been repeated, as it caused long continued pain and irritation, with constant desire to pass water. Except for the first two or three weeks of the complaint, there never had been any stoppage or retention of urine; and in *August* 1820, he could render it freely in any position. Latterly the power of retention had improved; he could now retain a pint of urine, although formerly obliged to void it by table-spoonfuls.

The pain, at first most severe in the glans penis, had latterly become fixed at the neck of the bladder, now and then extending to the bulb of the urethra. This pain most commonly came on about

noon daily, and generally continued till five P. M. ; obliging him to lay down, or sit quite still, as the least motion caused great additional pain and irritation.

As to the local state, pressure above the pubes gave no pain ; and the bladder, examined by the rectum, felt healthy, although it was conceived the prostate was somewhat enlarged, and rather tender. The passage of a confined motion always excited uneasiness at that part ; and a similar uneasiness was also felt during excessive relaxation of the bowels.

No satisfactory cause could be assigned for these complaints. About ten years before he had concluded that the urinary organs were in a weak state, having frequent solicitude to make water ; which continued two or three years. But for several years prior to the present attack, he retained his water very well. He never had any venereal affection, but had been much subject to copious emissions during sleep.

Various remedies had been directed, with various and but temporary success. The principal of these were opium, in glyster and suppository ; uva ursi ; magnesia ; soda ; copaiba ; blue pill ; and locally, leeches and fomentations. Of these the opiate glysters always gave relief to the daily returning pains.

As he had requested several opinions, one surgeon decided it to be an ulcer in the bladder, and that the coagulated albumen was the coating of the sore, directing him medicines, and enjoining him to wear an elastic gum catheter in the bladder, to prevent distention ; while another observed that this, like other affections of these parts, was dependent on disorder of the digestive organs alone, recommending that he should regard weight and measure in eating and drinking, and never do both at the same time.

My own opinion was, that irritation existing at

the neck of the bladder, had gone on to produce a circumscribed spot of inflammation, possibly ulceration; I thought the first the most probable state, having in many examinations of such diseases found the inflamed mucous membrane of the bladder throwing off patches of coagulable lymph; whereas the same membrane ulcerated, had always excreted, as far as I had seen, pus alone. The appearances noticed in the urine were exactly similar to those I had frequently observed in irritable bladder; from which in several instances of a strongly marked character, the patient had eventually recovered.

As to treatment, I advised the bladder should never be allowed to become painfully distended, a rule easily followed, where the power of expulsion remains unimpaired; in which state I conceived the introduction of any instrument to draw off the urine would only be a needless, and therefore injudicious interference with the natural offices of the parts. In the way of medicine, I thought the occasional use of opiates, and ætherials, likely to be useful; suggesting that if the complaint was not soon relieved, a trial should be made of the oxy-muriate of mercury, or the oxyde of arsenic, exhibited in decoction of sarsaparilla; very cautiously administered, so as to give the remedy a fair trial, without exposing the constitution to the risk of inconvenience. The latter of these two active medicines I rather felt disposed to select, from the irritation having manifested a tendency to regular periodic return. I also mentioned the trial of an issue, inserted above the pubes.

August 20. 1821. This gentleman visited me, from Lancashire. He stated that at the time he desired my opinion upon his case he had also obtained that of Dr. BAILLIE, which he now laid before me. The Doctor had conceived that chronic inflammation of a part of the inner membrane of the urinary bladder existed, near its neck, in which a

part of the prostate gland was included. Regarding treatment, the occasional application of leeches, the continued use of opiates, and a course of decoction of sarsaparilla with extract of conium, were recommended, in the trust that the complaint would ultimately subside, although the progress of the amendment might be very slow.

On my enquiring the progress of the symptoms for the last twelve months, he observed that the pain had now left the urethra, and was but seldom felt in the bladder, unless he either took cold, or attempted to write much. It had latterly settled itself into the higher part of the anus, where it had increased so much that he could seldom sit longer than a few minutes without experiencing such a hot burning pain as obliged him to get upon his legs, and make water, before he could obtain any relief. A few months before coming up to town, the physician in attendance had examined him, and thought the prostate gland was still tender, and that there was a disposition to excessive contraction in the sphincter, from irritation. Directed to use a rectum bougie, he tried it, and believed it had been of use, enabling him to void his stools more freely. With relation to his medical conduct, he admitted that he had given neither of the plans submitted to him a fair trial, having done little more than continue his opiate injections, sometimes to the extent of six or eight grains of solid opium in the day.

In examining the rectum I found the prostate gland tender to the touch, but not enlarged; neither did the lower part of the bowel appear to be in any way diseased. On further examination there was discovered, between five and six inches above the sphincter, a contraction, the precise circumstances of which were not exactly determined. It was probably, at least in part, of a spasmodic nature. The pain and irritation produced in the examination, he remarked, were the

same exactly with those to which he was at other times subject.

For the regulation of his future treatment, the opinion of Dr. HOOPER was requested, in consultation. The result of which was, that in the first place he should take medicines containing the lighter preparations of steel, continuing occasionally the opiate injection, but only to the extent of two grains daily ; and that in the second place, he had better avoid having recourse to any instruments, the introduction of which, we both agreed, was likely to increase the irritable state of the bowel.

April 22. 1822. He wrote a letter, from which the following is an extract : — “ My water more clear, contains now little or none of the mucous settlement. I have not occasion to make it once, where I formerly passed it six times in the day, and when in bed I have not occasion to get up once where I used to get up three times. My strength is much improved, and general health better. I am still obliged to use as many glysters, two or three in the day, but not of more than one-fourth the strength I was used to when in London, there not being more than a grain and a half of opium in each ; all which I think very satisfactory. But I cannot help thinking a further improvement might still be made, if only a substitute for the glysters could be found, as I am now obliged, in consequence of having used them so long, to take them at regular times, whether in pain or not, otherwise I should get so low and languid as not to be able to move. What I want, therefore, is something that will bear me up, when I have not pain to warrant the opiate glyster ; which I think ought not to be used when there is no pain, for then it often brings the pain, and prevents my making water freely. Both Dr. HOOPER and Mr. HOWSHIP laid great stress upon chalybeates, I have therefore taken the steel medicine regularly. I think there cannot be a doubt that if I had a sub-

stitute for the glyster when free from the pain, I should be much better. But I am obliged to take them at the regular times, although I have no pain at all, and probably nine times out of ten it occasions the very pains it was intended to prevent, as it often gets up into the higher bowel, and appears to contract the bladder, so as to give me great uneasiness, and cause my water to come away by drops, attended with much pain. The glysters also occasion a good deal of heat in the seat, or rectum, so that towards evening, when I have had my second or third injection, I cannot sit down five minutes without being in the greatest distress and misery; and it is only after I have been in bed two or three hours, and the effects of the glyster are gone off, that my water begins to flow freely again. My bowels have been so regular this last winter as to make me think there is no remaining contraction in the rectum."

May 27. I had the pleasure of seeing his brother, who presented me with a statement from which I found the directions I had given, in answer to his former letter, had been attended to, and had answered the purpose; for without his knowledge a confidential person had, week after week, very gradually lessened the quantity of opium in his injections, till at last he came to use, in fact, none at all. He then soon discovered the change; somewhat subject to a trifling degree of occasional pain in the bladder, he found he had borne the privation much better than he could have believed possible.

CASE 29.

Irritable Bladder, and Urethra; with Supposed Stricture.

April 20. 1821. I was consulted by a young gentleman, who had lately graduated in the University of Edinburgh. His complaints were a perpetual source of distress. From early youth, of irritable habit, he had been subject to frequent noc-

turnal emissions, occasional sharp pain in the glans penis, and acrimony of urine; these circumstances he sometimes attributed to close study, at other times to bad digestion. Frequently he felt dull aching pain in the perineum, after some months extending itself by degrees to the bladder. He thought the bladder easiest when empty, but scarcely uneasy when it contained a pint of urine; he never had occasion to pass it, during the night. Female society produced a painful sense of fulness and distention in the parts. The urethra and bladder had been repeatedly examined by elastic bougies, and by the sound. These examinations had always aggravated his sufferings. In conclusion, he had been much in the habit of taking opium, as it had afforded him a certain degree of relief. I requested him gradually to diminish his usual dose of opium; and directed some mild aperient medicines.

April 28. Extreme uneasiness, and a most distressing sense of fulness in the perineum, had induced him to apply leeches, affording partial and transitory relief. He had been recommended warm baths, but as they uniformly made him worse, he laid them aside.

In the beginning of *May* he left town for the west of England; where at my request he bathed several times in the sea, and took the muriated tincture of iron. He wrote to me on the 15th, stating what he had done, and adding that his distresses were rather increased than diminished; that he found himself much weakened by the harassing nature of his complaints. After bathing he experienced the glow of reaction, but felt nevertheless an absolute increase of pain in the bladder, and discomfort during the day. After expelling urine, he still felt the pungent stinging pain, almost spasmodic, in the glans; with increased aching in the perineum. The urine had long contained small filamentous appearances, and now ex-

hibited these appearances more evidently. The functions of the stomach were badly performed, and the steel not agreeing well, he had laid it aside, substituting the bark. He particularly entreated to know, if I thought his complaints could depend on calculus. In my reply, I assured him I had no idea of any disposition to stone; but that I believed his complaints arose from a partial congestion of the vessels upon the inner membrane of the neck of the bladder, and prostate gland, in connection with an irritable state of the seminal ducts, opening into the prostatal part of the urethra, and nothing more; and that I would recommend him to lay aside sea bathing, but to continue taking the bark.

Oct. 31. He wrote, expressing much regret at not having continued the means directed, he said he had tried fifty plans, and adhered to none; adding that he had been punished for his unsteadiness. The urethra was now so extremely irritable, he felt sorry I had not thought it right to pass a bougie for him when in London; an operation which now he said was scarcely practicable. A diminished stream of urine, a diffused pain in the bladder, the old pain at the glans, frequent emissions, general debility, and impaired digestion, formed his present list of complaints.

The concluding part of his letter, however, was the most important, in which he said, "caustic has been proposed, and has been once applied, near the bulb, the other two strictures being passed more readily; but as yet without mitigating the symptoms. I am in doubt whether to have it employed again, or any other application." To this I replied, that I should unquestionably advise him to come up to town, before any thing more was done.

Nov. 14. He reached London, and to satisfy his mind, I at once passed a fair-sized bougie with perfect ease into the bladder. I carefully examined

the bladder from the rectum, by the finger, ascertaining the condition of the more remote parts of the bowel by other instruments; without discovering disease, contraction, or irritation. The prostate gland and bladder felt very healthy; and the intestine for eleven and a half inches of its extent, was perfectly sound. He could scarcely, however, believe the urethra free from stricture, and was therefore particularly desired not to leave town without another opinion, to which he assented. I therefore met the late Mr. WILSON in consultation, who passed a full-sized silver sound at once into the bladder. It satisfied him, and he now declared with amazement, that more than twenty surgeons, at Bath, Bristol, Clifton, and elsewhere, had passed bougies for him, without one being able to get beyond the bulb; while most of them agreed there were three strictures.

The derangement in the association of the natural functions of the generative organs, was regarded by Mr. WILSON, as it had previously been by myself, as the true cause of all his complaints. He consequently gave him the same opinion he had before received, which was to avoid risk, and obtain comfort and security, by determining to marry early; regarding such change in circumstances, as a measure most likely to bring the functions and feelings of the system progressively round to their natural and healthy state; assisted occasionally by tonic medicines.

CASE 30.

Irritability from Venous Congestion at the Neck of the Bladder: with Renal Calculi.

December 1815. I visited a young gentleman, aged 15. His complaints were frequent, dull, aching pains, supposed in the chest. These were apparently seated in the muscles covering the ribs; an idea strengthened by the decided tenderness, and

soreness on pressure. Similar pains were occasionally felt in the muscular parietes of the abdomen. In addition to these complaints, I was soon informed of others, illustrative of the true nature of the disorder. He had just returned from school, where led into habits most destructive to all future health and happiness, he had for years been rendered subject to frequent nocturnal emissions; and although, upon the consequences of such habits being pointed out, he steadily desisted from any voluntary aggravation of them, his complaints continued to go on, in spite of abstinence, medicine, and the shower-bath.

In the spring of 1816, the pains about the chest and abdomen were so far relieved as to enable him to leave town, for the university; where his health again declined, and in *August*, at the request of his father, I paid him a visit at Oxford. He still lived cautiously, and abstinently, and drank only water; but the old pains about the chest and belly had increased, with sickness at stomach, tenderness and pain in the testes, frequent emissions, and severe pains at the loins. In consultation with a physician, medicines were again directed, but with little effect. The cold bath was also recommended, and this, when he steadily continued it, appeared to be more useful than any medicine.

In 1818, added to his other complaints, he became subject to pains of a new kind, at the loins, with deposit of mucous matter in the urine; together with a most distressing sense of weight in the perineum, and about the bladder. He was requested to continue the use of the cold bath, and also to attend particularly to the regulation of his bowels.

In 1819, he contracted gonorrhœa, from which, under the usual treatment, he recovered. In *July* he wrote, saying, that soon after the discharge had stopped, he had felt an uneasiness in passing water,

which made him suspect stricture was forming. The tenderness about the abdomen still existed.

March 22. 1820. He wrote up to acquaint me that he had just been seized with a violent pain in the loins, which soon went off, but the same day returned with such violence, that he was visited by a medical gentleman of Oxford, who directed an opiate, considering it an attack of gravel. The following day it returned more slightly, after which, in making water, he felt a sharp twitch in the urethra, and in the urine found two small calculi of uric acid, the largest less than a coriander seed. He was directed the carbonate of soda.

April 16. He reported that he had regularly continued with the soda, and had suffered a return of pain in the side, not as before transient and severe, but permanent and slight. During this pain, he observed two or three small crystals in the urine, which contained more of a brick dust-coloured sediment, with uric sand, than before. He was directed to continue the soda, but in larger quantity.

In the course of the summer, he visited town for a short time; and although the urine was now clear and healthy in its appearance, the stream was diminished, and there was an irritation in the urethra, with frequent desire to empty the bladder. I passed a bougie of moderate size, and found a spasmodic contraction at the bulb, which was, however, readily passed.

November 1. He wrote to say that his old complaints still continued; added to which, he now felt a sharp pain at the close of passing his water, darting from the neck of the bladder along the urethra to the glans penis. He observed, that he had long thought, and was persuaded in his own mind, a stone was forming in the kidney.

February 8. 1821. While in London, he had a slight cough, and spit some blood from the lungs; for which complaint, he was visited by Dr. HOOPER;

this attack was very soon removed, but his health remained indifferent, the urine depositing constantly a large proportion of thick mucous sediment, and sometimes red sand.

April 6. The spitting of blood having returned, Dr. HOOPER was again requested to see him. There was no pain at the chest, but increasing oppression, and the hæmorrhage not giving way, a consultation was proposed, and Dr. BAILLIE was requested to visit him. The spitting, at first blood and mucus, soon became purulent, and with the symptoms usually attendant on consumption, he fell off, sunk, and on *July 1.* died.

Having so long felt much for the declining health of this interesting young gentleman, and having repeatedly experienced anxiety and doubt as to the principle on which such complaints might be treated with most advantage, I was induced to fulfil the painful duty requested of me, in superintending the examination of the body.

In the right cavity of the chest, the lungs partially adherent, were universally tuberculated. In the superior lobe, the tubercles had formed abscesses, many of which had burst into the trachea. Near the most diseased parts of the lungs, blood had escaped from the capillary arteries, producing patches of effusion under the surface of the pleura investing the lung. A similar appearance was observed beneath the apposed surface of the pleura covering the pericardium. Within the cavity of the pericardium, no such change had taken place.

In the abdomen, the kidneys were externally healthy. The cavity of the left kidney laid open, a thick white fluid, appearing like cream, was readily and repeatedly expressed from the ducts of several of the mamillæ. From which, it might be inferred that the deposit of thick sediment in the urine had been derived, in part, from this source, and was, therefore, a depraved secretion from the gland itself, and not from the mucous membrane lining its

cavities. A small calculus, of uric acid, was found arrested in the upper orifice of the ureter. It was of the diameter of a large pea, and of an irregular flattened figure. Where the stone was confined, the inner surface of the ureter was of a dark, and even livid colour, from increased vascularity; the cavities of the infundibula, also, were irritable and vascular. The right kidney was perfectly healthy.

The bladder, large, but not thickened, was removed. Upon the anterior surface, towards its neck, was the most numerous assemblage of enlarged and varicose veins I had ever seen, filled with very dark-coloured coagulated blood. The veins upon the posterior part of the neck of the bladder were in a similar state, several of them being of the diameter of a goose-quill.

Within the bladder was a small quantity of thick and turbid urine, resembling that found in the ureter, and cavities of the left kidney, and similar to that usually passed for many months. The prostate gland was sound, the openings of the seminal ducts into the urethra, and the general surface of that canal, were nearly free from any appearance of irritation; but the mucous membrane lining the bladder, particularly towards its neck, was crowded with small vessels, rather behind than upon the surface; which appearance, together with the unusual and extreme congestion in the enlarged veins encircling the neck of the bladder, fully explained the irksome and harassing sensations of aching pain, from which, for years, he had been never altogether free.

CASE 31.

Irritable Bladder, with Peculiar Symptoms; from Diseased Prostate Gland.

December 1816. My opinion was desired by a clergyman, aged 74, residing at Chichester; five years subject to a complaint attributed to flatulency in the lower part of the rectum, where wind

generated, with great pain about the neck of the bladder and perineum. These parts, with the scrotum and penis, when the spasm came on, were agonized with pain, and so tender as not to bear the slightest contact. But when he could discharge wind downwards, the pain and agony subsided, till the wind generated again, which it was constantly doing; and while the spasm lasted, it induced great distress, from urgent desire to pass water, with aching and bearing down pains about the loins. Sometimes he found the spasms principally affect the vessels and nerves in each groin, in the scrotum, and thence to the neck of the bladder; but whenever he obtained a large discharge of wind per anum, he could press the scrotum perineum and parts about the neck of the bladder, as hard as any other part of the body, without pain.

The urine sometimes deposited a glairy sediment, and as often a white mucous matter. The bowels were habitually confined.

Leeches to the perineum had bled very freely, to no purpose; and the warm hip-bath been long used, without the least benefit. The spasms being much worse during the night, he hoped to have found relief from opiates; but these had only operated by increasing the difficulty of discharging either urine or wind. Stimulating applications, and soothing fomentations, to the perineum, alike failed to alleviate his distress.

Upon these grounds, I recommended him constantly and carefully to attend to his bowels, by mild and gentle aperient draughts; and that he should occasionally try the effect of one grain of opium, with five of extract of hyoscyamus, in the form of suppository, passed into the rectum.

These means, in a few weeks, I had the pleasure to learn, had afforded him very great relief. Some time after this, Dr. BURNETT, of Chichester, was consulted; and upon my making some enquiries, in *May* 1822, this gentleman did me the favour to

acquaint me, "That when he attended the late Mr. — he suffered from stricture in the urethra, and diseased prostate gland; his symptoms, at that time, presenting nothing unusual. His complaints, though they could not be removed, were so far amended, as to allow him to return to his clerical duties, which he continued to discharge till within a short time of his decease."

CASE 32.

Irritable Bladder, from Diseased Uterus.

A WOMAN, aged 37, after three years suffering from uterine pain, consequent upon a severe miscarriage, complained, in *November* 1819, of an uneasy sensation in the region of the bladder, with constant desire to pass water, which, with much bearing down, was generally voided in small quantity, and sometimes not at all. The urine lost its healthy characters, depositing a yellowish-coloured mucous sediment. She also became subject to pains in the loins, most urgent whenever the straining to pass water was most severe.

In the winter of 1820, by the advice of a neighbour, she tried, for two months, the effect of sitting six hours a-day over the steam of hot water, a practice that soon induced a prolapsus of the rectum, a complaint she never had before. Soon after she sat down, the bowel would protrude; without the least straining; for, as she expressed it, "the hot steam drew it down;" and so it usually remained till she left her seat, when it slowly returned. During this period, the bowel came down also, whenever she passed a stool. The best evidence, however, as to the cause, was this: that a few days after she laid aside the practice of sitting over steam, the protrusion ceased, and had never returned.

A few months after the commencement of irritation in the bladder, one night particularly dis-

tressed by the violence and severity of bearing down, she supposed she overstrained herself, for the next morning, she had lost the power of retention, and her urine had passed involuntarily ever since. About this time also, menstruation ceased, although she continued as before, to suffer constant pain in the uterine region.

Nov. 6. 1821. She was admitted into the Infirmary. The urine, at this time, contained a large proportion of a yellowish flocculent matter, attaching itself to the bottom of the vessel, and having a grassy appearance, exactly as sometimes occurs in irritable bladder, from stricture. On examining the bowel by the finger, I found it irritable, and formed into numerous relaxed folds. The state of the vagina could not be satisfactorily determined. It felt as if partially occupied by fleshy excrescences, yet it was spacious and relaxed; but I could not ascertain the position or existence of the os uteri. There was no tenderness about the abdomen; but the passing a motion induced a violence of straining equal to the severe pains of labour.

Nov. 13. Rather easier. The urine now deposited as much as a third part of pale yellowish or clay-coloured pulp, of very peculiar character; nearly as tenacious as birdlime, and containing here and there minute coagula of dark blood. As to medicine, a gentle anodyne was directed to be taken every night at bed-time.

Jan. 3. 1822. Remained much the same; and being desirous of going down into the country, she was at her own request discharged.

April 6. Readmitted. From taking a severe cold, she had lost the use of her limbs; her old complaints remaining much as they were. Medicines were directed, and her general health gradually improved.

April 25. Her most frequent distress was now an urgent desire to pass water, with a dreadful pain at the bottom of the stomach, in the seat of the

bladder. This attack generally lasted about a minute, during which she might strain, but could pass nothing; the pain over, the urine came away again as usual, so that she scarcely ever voided a spoonful at a time. Appetite and health tolerably good; and no pain whatever in the loins, groins, or thighs. Having business out, she was now again discharged.

CASE 33.

Irritable and Ulcerated Bladder, originating in a Bruise.

A POOR woman, a soldier's wife, aged 30, in Dec. 1820, passing a lane in the dark, fell over a large square stone, violently bruising the lower part of the abdomen. The immediate consequences, severe pains in the belly and loins, with fever, were neglected. As the catamenia were just subsiding at the time of the accident, flooding came on, and continued with scarcely an interval for near eight months. With constant pain in the region of the bladder, frequency in passing water, and general confinement of bowels, she was distressed by violent griping and forcing pains, distressing the whole contents of the pelvis.

Nine months after her fall, on her passage to Ireland, she mentioned her illness, and obtained some medicine, that relieved her bowels. She soon returned to England, and procured an admission into an hospital; her complaints no better. She was, under the physicians' care, directed various medicines, and in about three months the flooding ceased, but the tenderness and pains in the abdomen and bladder remained; and she now suddenly lost the power of retaining her water. Some weeks after this event, a sound was passed and the bladder examined, but no stone found, nor any information gained; but she felt much exhausted by the operation. By medicines her feverish symptoms were somewhat relieved, and by the administration of soothing anodyne injections she was

enabled sometimes to enjoy comparative ease from the pains in the loins and about the hips.

Nov. 28. 1821. She was admitted into the Infirmary. The abdomen was at this time painful and tender; but the pulse and tongue in a fair and natural state. Some aperient medicines were first directed.

Dec. 4. Added to other symptoms, she had a continual pale-coloured discharge of thin fluid from the vagina; and on examination it appeared that the uterus, as well as bladder, was diseased. A blister to the abdomen, and saline medicines, were directed.

Dec. 11. The bowels disordered, and relaxed; I proposed examining the state of the rectum, but recollecting what she had suffered in the examination of the bladder, she declined. On the 16th, however, she became very desirous of having this enquiry made; and a silver ball was therefore passed without obstruction to six inches, where a contraction was felt, which, however, was attributed to spasm. Under the direction of the apothecary she took the chalk mixture, with opium. Her medicines at first checked the diarrhœa, but it subsequently returned in greater violence; so that notwithstanding medical aid she sunk and died, *Jan. 5. 1822.*

In the abdomen I found a small quantity of purulent fluid, and a larger of effused lymph, connecting several folds of small intestine to the space between the bladder and uterus. The bladder was contracted and empty, and in its general structure healthy. The uterus not enlarged, was nevertheless diseased. The posterior part of the bladder, adherent to the cervix uteri, was with it involved in one general ulcerated cavity, which had destroyed the posterior and inferior part of the bladder, together with two-thirds of the substance of the uterus. This ulceration had left the external part of the urethra detached from what remained within of the bladder; the circumference of the ulcerated part of

the bladder was thickened, and the appearance of the inner membrane round the margin, that of irritation. The uterine appendages were extensively consolidated by inflammation, and in parts contained pus, in the interstices of the cellular texture. The mucous membrane of the rectum, for the lower eight or nine inches, was very vascular, and its coats thicker and more firm than natural; but there was no ulceration, nor any degree of permanent stricture.

As to the origin of this disease, it appears to me that the blow received in the first instance, most probably struck the posterior surface of a full bladder violently against the spine, just as happened in another instance (Case 46.); in the present case, however, falling short of laceration of its coats, although through inflammation the mischief went on to ulceration; extending to the uterine system, and thus proceeding on to its eventually fatal termination.

CASE 34.

Irritable Bladder, from Disease in its Coats.

Aug. 24. 1819. I was requested to visit a female, aged 79, who had long felt uneasiness about the bladder, and now complained of constant desire to pass water; which was rather a turbid purulent fluid than urine. It was voided in the smallest quantities, and sometimes streaked with blood. There was no pain or uneasiness, except in the seat of the bladder, and particularly towards the urethra. This complaint had for the last two months advanced imperceptibly, but now allowed neither sleep nor ease. Sometimes she had difficulty in voiding the urine, accompanied with darting and cutting pains in the part. The bowels were habitually regular. Examined by the vagina, the os uteri was found in its healthy state; and by the rectum, the bowel felt natural, but in pressing the finger forward, the parts appearing thicker than

common, she was instantly thrown into great agitation, saying she now felt the same pain as in making water, only not so severe in degree.

It was clear enough, that there was some disease in the bladder, for the temporary relief of which I directed the parts to be kept cool by the occasional use of a saturnine lotion; prescribing also an anodyne draught; and a starch injection containing thirty drops of tincture of opium, to be repeated night and morning.

Aug. 25. Somewhat easier, but declining fast. On the morning following she had less pain, in the afternoon was much lower, and in the course of the following night she died.

I fortunately obtained leave to examine the body, and found the bladder somewhat thickened, feeling as if moderately distended with a pulpy matter. Removed and opened, a little thick bloody urine, irregular masses of a sabulous deposit of the phosphates, and a considerable quantity of pulpy brain-like matter, were within its cavity. This pulpy substance in some parts was decomposed and putrid, in others of a cream colour, more firm texture, and evidently vascular. At some points, particularly towards the origin of the urethra, were irritable red spots upon the inner membrane; one of these had a patch of adherent sabulous matter upon its centre.

In doubt how the disease originated, and carefully turning a part of the mass out of the cavity, I found several pulpy tumors, exactly resembling the appearance of the fungus hæmatodes. One, the diameter of a five-shilling piece, lay on the left side, towards the posterior part of the bladder. This tumor, formed between the muscular and mucous coats of the bladder, had protruded inwards, rendering the inner membrane covering the lateral parts thin and fine; towards the centre the whole structure, surface, and substance, had given way, and was in a state of partial decomposition, mingled with the other

contents of the cavity, leaving a pulpy, ragged, projecting basis, with here and there an appearance of small arteries upon the whitish-coloured broken surface.

There were several other tumors, less advanced in growth, but of similar texture, upon different parts of the surface of the cavity. This disease is deposited in Mr. HEAVISIDE'S Museum.

It appeared probable that the above disease had originated in a neglected attack of inflammation of the bladder, for among the pulpy and sabulous contents were found numerous detached and adherent patches (some rather thick and large) of effused coagulable lymph; which upon the subsiding of the increased action into its chronic stage, had by degrees mingled with the imperfectly organized and decomposing mass of the disease.

The only other morbid appearance observed was in the gall bladder; which was contracted round, and closely adherent to, a number of small biliary calculi, angular and packed so as to present a uniform external surface. The stratum of lymph interposed between the surface of the gall bladder and that of the calculi, was extremely thin, and appeared to be converted into a fine cellular membranous structure.

CASE 35.

*Irritable Bladder, with Cancerous Disease.**

December 15. 1796. I was desired to see a gentleman, who it was suspected had stone in the bladder. On enquiry he said he had always been a regular, temperate, and healthy man. For the last two years his health had declined, which he principally attributed to anxiety of mind, connected with affairs of business. For the last two or three

* Extracted from a MS. in Mr. HEAVISIDE'S Museum, where the diseased parts are preserved.

months he had found difficulty and pain in making water, and twice in that period had had retention of urine, which was relieved by medicine.

His present complaints were frequent inclination and straining to make water, the act being followed by a discharge of viscid mucus, sometimes streaked with blood, and constant uneasiness, with irritation at the neck of the bladder. I told him it was difficult to say positively what the nature of the disease might be, unless he allowed me to examine his urethra and bladder. He readily consented, and I passed a middle-sized bougie into the bladder, but not easily, having met with two or three obstructions in the way. I then introduced a sound into the bladder, and endeavoured to ascertain whether there was a stone; but the sound felt so firmly wedged in, that it would neither move one way nor another. It was therefore withdrawn, and a considerable bleeding followed. Dr. CRICHTON and Mr. LUCAS were present at the examination, and we were all of opinion there was disease of the bladder, but of what kind it was not easy to say. Several days after this, I found him rather worse, passing water every hour, with great straining, and a copious discharge of a glairy and bloody mucus. Added to all this misery, he had a teasing diarrhœa, with prolapsus ani; little strength, and less appetite.

Still entertaining an idea that stricture had a considerable share in his complaints, I passed a full-sized bougie, which stopped at three and a half inches. Convinced that whatever might be the nature of the disease in his bladder, no benefit could arise till this obstruction was removed, I proposed to touch it with the lunar caustic; to this he was somewhat averse, fearing it might bring on more irritation, but I assured him it was more likely to diminish it. He therefore submitted, and *December 25.* the caustic was applied, only exciting a sense of local heat for about half an hour. In consultation it was agreed to continue this plan.

When the caustic had been applied seven or eight times, a full-sized bougie passed to the bulb of the urethra. I would have persevered with the caustic, but from the sleepless nights, and perpetual calls to make water, added to his other ills, harassed and worn out, he begged it might be laid aside.

He continued in this deplorable state, or rather getting worse, for three weeks, when he died, emaciated to the greatest possible degree.

All the viscera were sound, except the bladder, which was completely diseased, and in many points disorganised. The peritoneal covering was entire, but this being divided, the remaining coats of the bladder were in some places perfectly destroyed, and in others converted into a loose membranous, fungous, or cancerous structure. Towards the fundus, the muscular coat, as well as the inner membrane, was entire; the healthy mucous secretion, however, had apparently been deficient, several parts of the inner surface of the bladder being crusted over with sabulous and sandy matter.

The ureters, much distended with urine, were very thin.

CASE 36.

Irritation, from Fungus Hæmatodes of the Bladder.

A WOMAN, aged 57, applied for assistance in August, 1813; the following is the outline of her case. In 1805 the catamenia ceased, and for seven years afterward she enjoyed good health. About this time she felt a smarting uneasiness in making water, which in six months excited severe straining, and frequently when the bearing down was severe, blood passed with the urine. For this new symptom she took medicine, which, to use her own words, only “seemed to bring down more blood than before.” Thus her complaints increased. For the last three months she had been greatly distressed by wandering pains about the loins, and these lat-

terly became fixed and settled in the hips. Irritation to pass water now constant, the efforts, violently urgent, were renewed every ten minutes. Position made no difference; it continued equally night and day. When the pains were most violent, she always passed more or less pure blood with her water.

At the persuasion of a female friend, she tried the effect of sitting over the steam of warm water. This she at first fancied gave relief, but eventually found only to increase the hæmorrhage, it was given up.

An examination, per vaginam, afforded no clue, every part appearing to be in its natural state.

She considered her complaints rheumatic, and therefore procured a blister, which was laid upon the loins. On the blister taking effect, she first felt and mentioned a swelling in the lower part of the belly. Upon my examining the parts the following day, a considerable firm tumor, fixed to the bones, was evidently felt in the seat of the bladder, just above the pubes.

From the preceding hæmorrhages from the bladder, and from the feel of the tumor, it was thought possible it might be a mass of coagulated blood filling up the bladder, added to which, the external feel resembled that of a case in which Mr. HEAVISIDE found the bladder full of blood. (81.)

The poor woman fancied the pain in the back somewhat relieved by the blister, but not that in the bladder. The pains were exceeding violent, but had never the peculiar darting or burning feel generally characteristic of cancer. Pulse, small and weak, 120. The pains now, and from the first, were most constant and severe in the left side of the loins.

August 17. Great pain and distress, watchfulness, and fever. The tumor stationary. The grumous, bloody, or brown appearance of the urine, which for a few days ceased, now returned, with

an occasional formation of a small thin coagulum of blood at the bottom of the vessel, or the occasional escape of small coagula, formed in the bladder. The turpentine had been directed to check the bleeding, but in vain; she was now ordered ætherials and opiates. On the following day she died.

The tumor within the abdomen was manifest to the eye. Upon laying open the cavity a large, firm, elastic mass was found projected upwards from the pelvis, firmly adherent to the anterior bones. The small intestines, partially inflamed, were in various points adherent to the tumor.

From each side of the tumor in the pelvis, an extensive chain of enlarged lymphatic glands passed upwards upon the loins, to the root of the mesentery. The diseased glands were much more enlarged on the left, than the right side. Many of these glands were equal in size to a hen's egg. As it was impossible to ascertain clearly what the principal tumor was, without removal, it was dissected out, and the urethra was then found to pass into it. Following the cavity of the bladder by the probe, a section was carried through from the urethra, along the anterior part to the fundus vesicæ. This section included a considerable portion of the disease, which appeared to consist of a deposit of a soft, white, pulpy matter, into what appeared to have been originally the cellular texture connecting the coats of the bladder. The increasing pressure, from the progressive growth of the disease, had given the cellular membrane the appearance of fine ligamentous fasciculi passing in various directions, while the mode in which the albuminous matter had been deposited, the secretion having been principally carried forward at particular points, gave the whole mass the appearance of a congeries of tumors.

The quantity of disease formed, varied at different points. At the anterior part of the bladder the greatest thickness was one inch, but at the lateral and posterior parts I found it equal to two, and even three inches.

The disease was principally made up of the soft, white, pulpy matter, in some points resembling cream; although here and there a secretion of adipose substance assisted in completing the quantity. In many of the smaller tumors, minute extravasations of blood were found, upon dividing into their substance; in a few it was effused so near the surface as to be seen shining through the investing membrane. Some of these tumors had protruded into the cavity of the bladder, carrying the mucous membrane before them. Several parts of the mucous membrane so circumstanced, at the cervix of the bladder, were extremely vascular, and from these points of congestion, in the progress of disease, the blood had been poured out. This fact was proved by my finding small filamentous coagula, still connected with them; in the dissection.

The extravasation of blood into the substance of these tumors had taken place to a greater extent in the diseased lumbal glands, than in the tumors in the bladder; a circumstance, perhaps, explained by there having been an occasional, though, temporary relief to the congestion in the one situation, but not in the other. This disease, which is not of common occurrence, is put up in Mr. HEAVISIDE'S Museum.

PART II.

ON THE DISEASES THAT REGARD THE EXCRETION OF URINE.

CHAP. I.

ON INCONTINENCE OF URINE.

316. **I**NCONTINENCE of urine is a complaint principally occurring in early youth; although not unknown in later periods of life. Aged persons, subject to stricture, or to affection of prostate gland, are occasionally distressed by want of power to retain their urine, which, notwithstanding, is in these cases a symptom of a full bladder.

317. The involuntary discharge of urine during sleep has been variously accounted for, but it seems to me that a moment's consideration will clearly explain it. The general muscular coat of the cavity of the bladder may be regarded as an involuntary muscle; while, on the contrary, the circular band of muscular fibres surrounding its neck is, to a certain degree, obedient to volition. Now we know very well, that a state of repose relaxes very much the whole system of voluntary muscles, exerting little or no influence over the system of involuntary movements. Upon this principle, it is evident an involuntary flow of urine might more readily occur during sleep, than while awake. There is, however, I believe, another circumstance tending to explain how it happens. In the majority of cases, the early age of the child prevents the ascertaining whether the urine flows during a state of positive oblivion, or whether this event takes place only under some particular mental impression. The latter state, I rather believe, is mostly an invariable condition. Intimately ac-

quainted with a young person, in early youth long subject to this habit, he mentioned to me one circumstance, that upon these occasions, had often struck him as curious ; it was, that he never at any time wetted the bed, unless when engaged in a dream he felt the accustomed uneasiness from desire to make water, and fancy, immediately supplying what was wanting in time and place, the act of voiding it became in point of fact, as perfectly voluntary, as at any other time.

318. These circumstances have not, however, been considered in exactly this point of view, by the illustrious DESAULT ; who, in reference to incontinence of urine, during sleep, observes, “*la sensation qui met en jeu la contractilité de la vessie, et accompagne l'éjection des urines, est si foible, que cette fonction se fait sans un acte formel de la volonté, sans exciter même une impression assez vive pour interrompre le sommeil ;*” although the methods of cure proposed, could have derived their efficacy from no other source than a mental impression, which it may be fairly inferred, was in fact an impulse of terror, so deep and permanent, as to attend even the light excursions of fancy during sleep.

319. The modes of cure proposed by M. DESAULT may be estimated by the following specimen. “*La crainte les rend plus attentifs au besoin d'uriner, et fait qu'ils épient, en quelque sort, le premier aiguillon qui annonce ce besoin. C'est à cette manière d'agir, que l'on doit rapporter les guérisons qu'ont produit une foule de moyens plus effrayans les uns que les autres ; c'est ainsi qu'on a vu des enfans être pour toujours délivrés de cette incommodité, en leur faisant écraser des souris vivantes dans les mains, en les faisant assister au lit d'un mourant, &c.*”

320. Where this disorder occurs in the adult as a simple affection, it is generally either the consequence of some paralytic affection at the neck of

the bladder, or of some violent distention of the urethra.

321. Now and then, as observed in a preceding section, a calculus lodged in the neck of the bladder will induce an involuntary flow of urine; occasionally a fungous tumor, in a similar situation, has given rise to the same unpleasant symptom. Not unfrequently, this event follows the forcible distention of the urethra, especially in the female, from the expulsion or extraction of a large calculus. (Case 24.)

322. Incontinence of urine in the female, is sometimes induced by difficult labour. In a recent case of this kind in a young woman, who, at the request of the midwife was kindly visited by Dr. MERRIMAN, the labour was not considered such a one as should lead to ulceration or sloughing of the bladder; but as she had scarcely any power of retention, five weeks after delivery, I was requested to call upon her, examine her state, and consider whether any thing could be done for her relief. The orifice of the urethra I found irritable and red. I first passed the smooth blades of a light pair of polypus forceps (the blades of which were rather long) just so far into the urethra as to reach the bladder; and then very gently and slowly expanded the blades, by pressing my fingers by degrees between the handles. In two or three minutes I removed the forceps, and introduced my fore finger, perceiving in my progress a strong and tight thread, which surrounded the canal at one part, the rest of the urethra relaxing very freely. This narrow ligature at first prevented the easy introduction of the finger, till it probably ruptured, as I felt no more of it, and found more freedom in then examining the cavity of the bladder with the one finger, while I followed it by another, introduced per vaginam, without perceiving any trace of wound or ulceration. A few drops of blood followed the operation. Calling some days

after, I was agreeably surprised on finding that since the dilatation of the urethra, the urine previously almost always dropping away, but never passing in a full stream, she had now the power of retaining nearly as long as she pleased, and also of voiding in a free and large stream "as in health ;" she soon entirely recovered.

323. Incontinence of urine, it is true, does not expose the patient to such serious consequences as are induced by retention ; but it nevertheless subjects him to inconveniences extremely distressing to one who is still desirous to enjoy some of the comforts of society. The clothes, always moistened and wet with urine, acquiring at length so strong a smell, as to be offensive to himself, and particularly so to all around him.

324. Incontinence of urine, in young subjects, is generally very easily removed. All that is commonly required is, to stimulate to a certain degree, the neck of the bladder ; and this is most conveniently accomplished by the application of a small blister to the loins, or if that fails, to the perineum, the blister being for some time kept open, and dressed occasionally with the ung. lyttæ. The object is to keep up a degree of irritation at the neck of the bladder, during a certain period, by which the parts are roused into action ; and I believe this plan, simple as it is, will generally answer, at least, I have very frequently seen it succeed, but never known it fail.

325. Where this complaint occurs in the adult, induced by fatigue of the parts, from excessive debauchery, or perhaps, the consequence of a slight paralytic affection, I know of no better mode of treatment, than that just mentioned. A blister will here, however, sometimes fail, and when this is the case, the tinct. lyttæ may be given internally, so as to answer the same purpose.

326. Where so unpleasant a symptom attends calculous complaints, every thing possible should

be tried, to alleviate the distress it produces ; but in these complaints, even this alleviation must be attempted with great caution. Various contrivances for receiving the urine, and various instruments for compressing the urethra, have been suggested. The first, however, always become extremely unpleasant and offensive, as well as inconvenient; the second are sometimes capable of affording relief, provided the pressure is confined to the urethra, without hindering or restraining the circulation through the parts. Pressure upon the urethra, in most complaints of a calculous nature, must be considered a hazardous experiment; and the same objection may attach to the application of blisters. Stone or gravel induces a state of preternatural irritability in the neck of the bladder and urethra, very apt to be increased by irritating medicines, or aggravated by local pressure.

327. This complaint has been mentioned as the occasional consequence of excessive distention of the urethra; the only instance of incontinence of urine, that appears entitled to a place here, is one of this kind; and it derives its chief interest from the tenor of the precept it may convey, as to the disputed fact of there being still some few fashionable follies to be met with in the practice of surgery. Where extreme distention has been the consequence of the passage of a large urinary calculus, or the passing instruments of excessive dimensions, time and tonics are the principal means for effecting the recovery of the powers and functions of the parts.

CASE 37.

Incontinence of Urine, from using Large Bougies; for a Supposed Stricture.

Oct. 20. 1818. I was consulted by a gentleman for stricture. He stated, that two years since he was in town, under a surgeon of eminence in

London, who told him his complaint was stricture, and passed in succession different sized metallic bougies, for several weeks; and then directed him to take a set with him down to Scotland, and pass them occasionally for himself. He produced the instruments, and the largest size (full half an inch in diameter) astonished me; though he said he could pass it, and proposed my seeing him do so. This, however, I objected to, saying I believed what he said, that it would in general find an obstruction before it had gone far, and well it might, while the urethra had any feeling; that the only symptom of which he complained, a want of power of retention, would hardly subside while he used any instrument of that size; it being, in my judgment, not only unreasonable, but ridiculous, to think of passing such a bougie. In looking over his case of instruments, I selected the smallest of twelve, passed it as a full size into the bladder, without the least hindrance; and stated to him, it was very clear there was no stricture at present, but that he could not go a more ready way to work to produce either that, or some other mischief in the canal, than by forcing in an instrument so much beyond the natural power of the urethra to receive, as that he had just shown me. To this he replied by admitting that the introduction of the largest size had frequently brought on irritation about the prostate gland.

I advised that he should do nothing; considering it most probable that by discontinuing the use of instruments, the bladder would by degrees recover perfectly its power of retention.

CHAP. II.

ON RETENTION OF URINE.

328. **R**ETENTION of urine is that malady in which the course of the urine is arrested in some part of those passages by which it is destined to flow off. This definition naturally suggests as many species as there are particular cavities. Four kinds of retention may therefore be enumerated. The first having its seat in the ureter and pelvis of the kidney; the second in the bladder; the third in the urethra; and the fourth and last, in the prepuce. We shall confine the attention, under these divisions, to the immediate seat of obstruction, not advertg to subsequent effects of accumulation, for in this way retention of several species would be included under one head. For example, urine retained in the urethra, if the disease be of any long standing, gives rise to retention in the bladder, in the ureters, and eventually in the very substance of the kidneys.

SECT. I.

On Retention of Urine in the Ureters.

329. **T**HE course, considerable extent, and yielding structure of the ureters, give every reason to expect they must be very subject to obstruction or pressure, from changes taking place in the contents or solid texture of surrounding parts, as well as from a variety of causes originating within themselves; obstruction in the ureters however, by whatever cause brought on, induces one and the same effect, retention of urine. In some cases the obstruction may be confined to one ureter and kidney, while in others both may be equally affected; if under the latter circumstances the retention is nearly per-

fect, it will not be easy, and sometimes impossible to distinguish the case from one of suppression.

330. The general consequences of this complaint, in producing distention of the kidney, have been already noticed. (60.) M. DESAULT observes that in all these cases the tunics of the enlarged kidney become thickened and dense, and that the cellular texture surrounding the gland undergoes a similar change, becoming condensed. I have examined many specimens in which this remark appeared to be verified, but have also seen some instances in which the operation of the same causes had certainly produced the most opposite effects, reducing the whole kidney to a cluster of thin vesicles, of so delicate a texture as to be almost entirely transparent. Some further remarks upon similar changes from obstructed urethra will be made in a subsequent part of these observations. (646.)

331. The dissection of a child is mentioned by M. DESAULT, in which the kidneys suppurated, were filled with calculi, the ureters being much enlarged, and the right ureter contracted by an annular stricture about its middle, appearing somewhat like the valve of the pylorus. Above the obstructed part the ureter was most dilated.

332. In the Museum of the Royal College of Surgeons is one curious instance of stricture in the ureter, apparently from the external membrane upon one side of the canal becoming consolidated and contracted, drawing the canal together at that part, so as to throw the inner membrane across the way, in a fold; in another preparation in the same collection, a stricture appears to have been formed by a partial contraction of the inner membrane alone, drawing the fold across two-thirds the space of the enlarged ureter.

333. A young medical gentleman, ten years subject to very painful nephritic attacks, was at length destroyed by his disease. The principal general feature of his complaint having been a gnawing fixed

pain, in the left kidney, increased by pressure or motion of the trunk. The urine small in quantity, once or twice slightly bloody, but never purulent. Laxatives always relieved him. On examining the body, a large, flat, oblong tumor, full of fluid, occupied the whole lumbar region. Laid open, three pints of milky fluid escaped from the enlarged cells of a greatly distended kidney, the natural structure of which, except its thickened membranes, was nearly destroyed. A small calculus was found within the sac, which exactly fitted the orifice of the ureter.*

334. In another very interesting example of obstructed ureter, under the care of Dr. JOHNSON, the cause seems to have been the frequent application of cold and wet clothes to the abdomen, the ill effects of the complaint having been aggravated at one time by the pressure of the gravid uterus. The diseased kidney, forming an evident fluctuating tumor, was tender to the touch, and extremely painful on pressure. The urine was always either scanty and high coloured, or plentiful and white, like milk. Reduced by colliquative diarrhoea, she sunk and died. On opening the body, a very enlarged ureter, and an immense bag, the only remains of a kidney, distended to an unexampled magnitude, were found. Opening into the flaccid and almost empty bag, about three pints of milky fluid, similar to that which had flowed in large quantities by the urethra, a few days before death, were removed. The internal surface highly vascular, and thickly studded with a kind of mamillary or papillary bodies, from the size of a pin's head to that of a small pea, formed an immense cyst, which, previous to its subsidence, must have contained at least five or six quarts of fluid. It is to be regretted that circumstances did not permit the ureter to be examined with sufficient care to deter-

* Med. Chir. Review, December 1822.

mine the cause, although there can be no doubt of the fact of its occasional obstruction.*

335. A very singular instance of congenital obstruction, from impervious ureter, is related in the *Sepulchretum* of BONETUS, in which the cavity of the abdomen was distended by a large mass, the description of which leaves no room for doubt: “*Nam venis magnis per superficiem sparsis præditus erat tumor, et in ejus parte superiore, aliquid rubicundi instar placentæ uterinæ apparebat. — Aperto tumore invenimus eum repletum fuisse copia seri ingenti; tandemque deprehendimus renem dextrum in ejusmodi molem excrevisse, et tumorem illum efformasse, qui tamen ren et a figura sua naturali, et a substantia plurimum discrepabat, cum crassissimæ membranæ erat admodum similis, ureter quoque dexter plane erat impervius.*” †

336. A case of apparently complete suppression of urine is related by Dr. CLARKE, in a patient long subject to gravel and stone. The symptoms were such as to indicate calculi in the ureters, and the treatment directed to relieve inflammation and abate excited action in the kidneys; but on the eighth day he died comatose. In the pelvis of the right kidney was found a considerable quantity of gravel, the right ureter near the middle obstructed by a stone the size of a horse-bean. The portion between this part and the kidney was almost entirely filled up with sand. The left kidney appeared inflamed, and gangrenous; in its pelvis was some gravel, and a stone the size of an almond. The left ureter about the middle was distended by a calculus, the size of the last phalanx of the little finger; above this obstruction the ureter contained a small quantity of serous fluid, and in the pelvis of each kidney a spoonful of a similar fluid was found, without the least urinous smell. The blad-

* *Med. Chir. Journal*, July 1816.

† *Lib. iii. Sect. 17.*

der empty and sound, contained a stone, weighing three drachms.*

337. The largest calculus I ever found in the ureter I met with very lately, in examining the body of an officer of high rank in the navy, all his life subject to irritation at the neck of the bladder. Several years before death he had a severe nephritic attack in the left kidney, since which time his physician, Dr. HOOPER, had considered that he laboured most probably under a purulent affection of kidney, to which severe sympathetic pains, lameness, and wasting of the thigh, were referred; as there was no direct evidence of his having ever been subject to stone or gravel. On opening the body, I found the left kidney distended, but in texture reduced nearly to a pulp. In the lower part of the left ureter was a large calculus, apparently uric acid, almost two inches long, and weighing near five drachms. The ureter, thickened and enlarged, at the part where the calculus was lodged, was irritable upon its internal surface. Within the kidney and ureter was a little thin purulent fluid, of which the healthy bladder also contained some. The diseased kidney was injected, and found to have its internal membrane thickly sprinkled with small spots of extravasated vermilion, with little appearance of distinct vascularity. The left psoas muscle formed a large soft tumor, which, cut into, proved to be an extensive and very unusual instance of fungus hæmatodes; which had rendered the lower lumbar vertebræ carious, destroying the intervertebral substance.

338. Where a calculus has made its way through the whole extent of the canal, it may be arrested at the opening of the ureter into the bladder (194.); and such a case occurred not only to LE DRAN, but also to M. DESAULT, who opening the female bladder, by the cutting gorget, felt the stone by the

* Med. Commentaries, vol. vi.

forceps, but could not grasp it, as it seemed to slip away. A substance was felt, but not the peculiar sensation of a bare stone. The finger again passed, a tumor was felt, which yielded easily to pressure. The left fore-finger in the vagina assured M. DESAULT there was a stone in the tumor, and that it was situated about the termination of the ureter, which led him to suspect the stone was engaged in that part which passes obliquely through the coats of the bladder. This he ascertained to be the case, by passing his finger over the surface of the tumor, and feeling the membranous folds by which it was covered. For its liberation, an instrument having a concealed blade, termed a "coupe-bride," was introduced, and dividing the membrane by which the stone was covered, it dropped into the bladder, was extracted, and the patient did well.*

339. Obstruction in the ureter has sometimes arisen from the intrusion of hydatids. M. DESAULT presented to the Academy of Surgery a preparation from a female, one kidney being converted into an assemblage of hydatids, connected together by the finest peduncles; the ureter on the same side containing many more, the size of grapes, which appeared to have been detached from the cavity of the kidney, and arrested in their way through the ureter so as to prevent the escape of urine.

340. With regard to the question of a contractile power in the ureters, and their being consequently subject to obstruction from spasm, as far as respects practical importance, it may be easily determined; experience furnishing many arguments in its favour, and the present state of our knowledge no proofs to the contrary. I have in very many instances of affection of these tubes, found the pain, and as far as could be proved in the living body, the obstruction also, relieved and removed by antispasmodic remedies.

* Journal de Chirurg. tom. i.

341. As to the operation of confined flatus, or other matters within the intestines, tending to produce obstruction by pressure upon the ureter; it seems to me a cause the agency of which can very rarely prove serious. This is also the opinion of M. DESAULT, who observes that perhaps the most ordinary cause of pressure is the extension of disease in scirrhus uterus, and states the appearances found in a body brought for dissection; in the annexed case, however (Case 38.), I have been enabled to give the symptoms, with the appearances.

342. After all, it will generally happen that retention of urine in the ureters cannot be ascertained till after death, particularly if the affection be confined to one side, for in this case as the secretion declines in the one kidney, that of the other usually becomes more active and efficient. It is in fact, only when the preceding symptoms suggest the opinion of gravel, calculus, or other cause of obstruction existing in the kidney, that we can have any solid ground for supposing an obstruction in the ureter has taken place. Such opinion, however, is powerfully supported in some cases, by the patient's having on former occasions passed calculi from the kidneys; and in others by the pain and distress suddenly ceasing, and giving place to the usual indications of stone in the bladder. (111.)

343. The importance of this complaint will depend on the nature, magnitude, and situation of the obstruction, or whether both, or only one ureter, be affected. Opinion upon these points can, however, very rarely go beyond conjecture; neither would it often lead to advantage, were it otherwise, for medicine frequently can perform but little, and surgery still less, in relieving the symptoms.

344. The treatment that will be most conducive to comfort and recovery, will be conducted upon the general principles laid down for the relief of irritable or inflammatory affection of kidney (15.); and also for the treatment of stone in the ureter. (195.)

CASE 38.

Retention of Urine in the Ureters, with Ulcerated Bladder.

A MIDDLE-AGED woman received a violent blow upon the lower part of the abdomen, in *Aug.* 1818. The severity of pain consequent upon the injury declined, and feeling little from it, she supposed herself recovered. Her health was tolerable, and menstruation regular up to *April* 1821; at this period the catamenia left her, and incessant pains came on in the loins, sometimes with extreme severity. In the beginning of *August*, the urine was first observed to contain a whitish sediment, tinged with blood, furnishing no coagulum, but giving a crimson blush. *Aug.* 14. The bowels on the preceding day had been relaxed seven times; the motions thin and watery. For this the cretaceous mixture had been taken, with little effect. The stomach rejected every thing, with violent and frequent retching; the cheeks being red and flushed. Late the same evening a severe fit of tremor, convulsion, and insensibility, came on; but this subsided in about an hour. In the course of that day only a tea-cupful of urine passed, and the succeeding day (the 14th) none. That last voided was thick; but the sediment was less in quantity, though still tinged with blood. For the last few days she had complained excessively of the distressing pains in the loins; but said, she had no pain in the belly, neither could I perceive any tenderness on pressure in the seat of the bladder, though she admitted that sudden pressure about the navel gave pain. The pulse was 64, neither hard nor full. The tongue was somewhat white; the skin pale and clammy. This day it was observed that the right side was much prone to agitation. In the course of the morning she was visited, and prescribed for, by the physician; but early the following morning she died.

On opening the head, I found considerable serous effusion between the arachnoide and pia-matral

membranes, upon the surface of each hemisphere, and upon the basis, of the brain. There was little fluid in the ventricles, but upon the whole the state of the vascular system of the brain, proved the existence of congestion within the head.

In the abdomen, the stomach was contracted and empty. The intestines, liver, and spleen, were healthy; but there was some effusion of serum into the general cavity. The uterus was enlarged, to about three times its natural size, and its peritoneal covering very vascular. The right kidney was only half its natural size, and proved to be not only wasted, but reduced into cells. The pelvis, and ureter were much enlarged, from the continued pressure of the contained urine. The left kidney was large, but comparatively healthy. The infundibula, pelvis, and ureter, upon this side also, were distended in a less degree than on the right side.

On further dissection, the broad ligaments of the uterus, and the cellular membrane connected with them towards the ischiatic notch on each side, were found much thickened, forming an extensive scirrhous mass. I carefully removed the whole of the disease, when it appeared that the affection of the kidneys had arisen from the ureters being compressed, in consequence of their lower extremities being involved in the uterine disease.

I next divided the urethra and fore part of the bladder. Its cavity was not enlarged, but highly vascular. The posterior surface of its inner membrane near its neck was pushed up by a soft pulpy tumor, the size of a walnut, just behind which a recess appeared, and an opening was found, freely admitting the finger into the vagina. The rectum laid open, and washed, was sound; but the capillary vessels upon its inside were enlarged, opposite the part where the bowel was connected with the uterus.

A longitudinal section carried through the gut from behind, to lay open the vagina and uterus, exposed at once the primary seat of disease. The

cervix uteri, and in some measure the body of the womb, were destroyed, by an extensive ulceration, passing downwards into the vagina, and upwards nearly to the fundus of the uterus. The structure of the womb next to the ulcerated surface was of a soft consistence, like brain; but what remained beyond this was of a cartilaginous hardness. On a part of the ulcerated mass was the opening of communication with the cavity of the bladder; which opening sufficiently explained the appearances in the urine, while the other effects of disease demonstrated the true cause of the apparent want of secretion.

On Retention of Urine in the Bladder.

345. This kind of retention of urine, which may arise from any cause impeding the escape of that fluid by the urethra, proves that the bladder is capable of undergoing great expansion, so as to contain many pints, or even quarts, of urine; not only mounting upwards beyond the umbilicus, but occasionally protruding, either into the groin, or scrotum, so as to form hernia. (401.)

346. The distended bladder pressing backward into the rectum, and in the female, downwards into the vagina, may interfere with the proper functions of the bowels. In its progress upwards, carrying as it does, the peritoneal covering before it, the bladder advancing between that membrane and the abdominal muscles, presents an extended tumor in direct contact with those muscles, in the hypogastric region, where the bladder may be opened without risk of wounding the peritoneum.

347. Where the distended bladder remains unrelieved, the urine prevented flowing in freely by the ureters, they also become dilated. In this state, it has been observed by M. PETIT, there is a point of distention at which the opening of the ureter ceases to be valvular*; under which change, the

* Œuvres Posthum.

severity of distress is said to become less insupportable. Progressively, however, the expansion of the ureters is necessarily succeeded by retention within the kidneys, of which suspended secretion, or suppression is the consequence.

348. Retention in the bladder is readily ascertained. Want of power to pass urine, its being voided by drops, or small quantities at a time, constant desire to make water, continuing after a usual quantity has passed, straining preceding the act, a diminished stream, a sense of weight and tenesmus, all occasionally serve to point it out. Added to which, acute pains are felt in the seat of the bladder, urethra, and upwards towards the loins, sometimes with pain and cramps in the thighs.

349. To determine, however, with precision, the state of the bladder, the uniformly soft, circumscribed, and fluctuating tumor must be felt above the pubes, and examined also, pressing into the rectum, or vagina; and the undulation may be determined by the finger, at either of the two last-mentioned points, by producing slight vibrations in that part of the tumor above the pubes.

350. Retention of urine in the bladder, if complete, is a very serious complaint, requiring prompt assistance; which if deferred, leads to alarming or fatal consequences. The bladder long distended, loses its power of contraction, and this is restored with difficulty. It is extremely apt to become irritable and inflamed, and then falls into a sort of gangrenous suppuration, of which I have seen several instances. (Case 56.)

351. Sometimes rupture of the bladder takes place, and the urine is dispersed in the cellular texture surrounding the pelvis, forming tumor in the perineum, scrotum, and penis. M. DESAULT observes, that sometimes the contents of the bladder are thus effused between the parietes of the abdomen, producing deposits, and generally end-

ing in fistulous openings, and gangrenous suppuration of the parts.

352. In the treatment of this retention, the first object is to empty the bladder, as soon as possible ; the second, to remove or relieve the disorder, of which the retention was the consequence. The first object is best attained by the introduction of the catheter, an operation of perfect ease, where the urethra is free from obstruction ; and those cases of retention that occur from obstructed urethra, may with more propriety be referred to under their proper heads. It is, at present, intended to consider the introduction of the catheter, under circumstances in which the canal of the urethra is free.

353. The catheter, either of silver, metallic alloy, or elastic gum, is selected as to its diameter and length, suitably to the age of the patient, and the particular circumstances of the case. In the construction of the catheter, the perforations towards its extremity were formerly made small and numerous, but of late, one comparatively large oval opening on each side of the tube, the edge rendered extremely smooth, has been generally preferred. The smaller openings being very subject to be obstructed by viscid albuminous sediment, coagula of blood, or other matters in the urine.

354. As a general rule, a large-sized catheter, as less likely to deviate from the proper course of the canal, is preferable to a small one. Upon this point, M. DESAULT observes, “ *elles entrent plus facilement, effacent, en entrant, les plis du canal, empêchent de faire de fausses routes, et donnent à l'urine une issue plus facile.*” When, however, an obstruction exists, a small instrument is, of course, in general, more convenient.

355. The form, or curvature of the catheter, is subject to variation ; the only important rule is to set the instrument to that figure in which the point may, with the greatest ease and certainty, be

directed along the upper side of the canal, till it has fairly entered the bladder.

356. Where it appears desirable to avoid using a hard or inflexible instrument, a catheter of elastic gum may be chosen in preference; and this, according to circumstances, may be introduced alone, or upon a curved metallic stilet, subsequently withdrawn. Any laboured detail, as to the course of the instrument, or the minute anatomy of the parts, to those already acquainted with the anatomy of these organs, would be superfluous; and to those uninformed in these matters, it would be useless, such instruments in the hand of an inexperienced person being much more likely to take a wrong, than a right, direction.

357. We are assured of the catheter having reached the bladder by the depth to which it has passed, by feeling no resistance to its further progress, and especially by the free stream of urine.

358. The whole of the urine having been allowed to flow off, some writers advise injecting the bladder for the purpose of diluting and washing away any mucous matter; a suggestion that may be valuable, where a quantity passes with difficulty; but having never seen the necessity for applying this precept, while I have seen a bladder, already irritable, thrown into great discomposure from the simplest injection (Case 88.), I should rarely feel disposed to adopt this practice.

359. Where an elastic catheter is to be worn for some time, care must be taken that it shall pass so far into the canal as that its eyes only shall project into the cavity of the bladder, to avoid the ill consequences that may attend unnecessary irritation (Case 62.); the outer part being safely tied, and secured to a bandage passing round the waist; for when attached to a few threads tied round the parts, behind the prepuce, irritation and ulceration are most frequently the consequence. The external opening of the instrument may be closed

with a small plug, and the urine evacuated according to circumstances, two, three, or four times a day. When a catheter of silver is employed, it must be also secured, if left in the bladder, from slipping out of its place.

360. Any metallic instrument is, however, worn with less comfort by a patient, than one of elastic gum, unless during confinement to bed, where the handle of the metallic catheter, very much in the way of the clothes when dressed, is not productive of so much inconvenience.

361. The catheter, especially if of elastic gum, should every few days be carefully removed, according to its known power of resisting the influence of the urine (Case 61.); it should then be washed and cleared from any adherent mucous, calculous, or other matter, and carefully examined, to ascertain if any part is softened or injured, by remaining in the urethra; and if rough, cracked, or otherwise damaged, it must on no account be again used, as the rough surface may cause irritation, or the injured portion breaking off, may lodge in the bladder, and lay the foundation for stone.

362. We shall now pass on to consider the causes of retention of urine more in detail, referring these to three general heads. First, those affections in which the coats of the bladder are deprived of their contractile force, from age, excess, the abuse of diuretics, affection of brain or spinal marrow, overdistention, inflammation or spasm of bladder, &c. Second, affections from causes within the cavity of the bladder, fungous tumor, coagulum of blood, extremely tenacious mucous, or albuminous matter, effused from its inner membrane, &c. Third, affections, the consequence of displacement either of the bladder, or other viscera, producing pressure on the urethra, or tumors, which, in their development, produce the same effect. Rupture of the bladder from external violence, an accident un-

connected with external wound, but attended with some of the appearances of retention, will be lastly noticed.

SECT. II.

On Retention, from Age.

363. THE urinary bladder, like most other parts of the body, is subject, on the advance of age, to lose partially or entirely its power of contraction. It may still expel the urine, but only by requiring the aid of the abdominal muscles to assist its own powers of expulsion.

The patient, perhaps conscious of having never had complaint in the urethra, observes that although he still voids his urine in as full a stream as before, he has not the same power to empty the bladder quickly or perfectly.

364. This kind of retention, rarely complete, generally admits of the urine being voided in the same quantity as secreted, and is therefore seldom productive of serious consequences. A tumid state of bladder from this cause may continue a long time without inducing further inconvenience, than an unpleasant sense of weight about the pubes and perineum. M. SABATIER was once consulted by a lady for a tumor that appeared subsequent to her accouchement, which turned out to be nothing more than the bladder excessively distended with urine.

365. Frequently this complaint passes on without regard, being considered as an infirmity natural to age; while the urine, too long detained in the bladder, becomes putrid, and eventually reduces the inner coat of the bladder to nearly the same state. (Case 56.)

366. The indications in this case are to evacuate the urine, and restore the tone of the bladder; both purposes being sometimes answered by the regular use of the catheter. In the early stages of this complaint, the sudden application of cold to the surface of the body is frequently effectual in enabling the patient to void his urine. At this period

it is important to attend to the first inclination that occurs to pass water, as every hour of delay tends still further to disable the bladder from assisting itself.

367. Where the loss of power is complete, the only resource is the catheter, passed at intervals or kept in the bladder. In some cases an elastic catheter may be most convenient, but where the instrument is not retained in the bladder, a large-sized silver catheter will have the advantage.

368. The treatment necessarily tedious, and the use of the catheter often required for the rest of the patient's life, will sometimes render it expedient to teach him to pass the instrument for himself. Every now and then it will be also right that he should endeavour to void his urine by the natural efforts, ascertaining afterward by the catheter whether the bladder was emptied.

369. Diuretics and balsamics, cold bathing, stimulating applications, and even astringent injections into the bladder, have all been recommended and used, without benefit. The only dependence is on the catheter; where this fails, no other means succeed.

370. A person is mentioned by M. DESAULT, aged 87, who two years subject to this complaint, had then uneasiness come on in the glans and perineum, bloody urine, and other symptoms of stone, aggravated by any error in diet, or agitation of mind. The calculus felt by the catheter in the neck of the bladder, the operation was performed, the only inconvenience attending which was a considerable hæmorrhage, which it was for some hours attempted to relieve by compression. For the day and night after the operation, urine flowed freely by the wound, but the following day almost ceased. The little that appeared, tinged with blood, argued a coagulum forming in the bladder. Beyond the pains incident to the operation, the patient now began to feel an anxiety and weight insupportable. A smart attack of fever, with frequent hiccup and vomiting succeeded during the night, an oblong

tumor with fluctuation being felt in the seat of the bladder. This last circumstance explained the cause of all his suffering, to relieve which an elastic catheter was passed into the bladder, and near a pint of bloody urine drawn off. Some coagula still remained behind, which reddened the injections then thrown up into the bladder; but frequently repeated, they succeeded at last in removing the whole, and the patient, thus delivered from the effects of the accident that caused the sudden retention, improved hourly, and in twenty days had entirely recovered from the operation; during which period a catheter was kept in the bladder.

SECT. III.

On Retention, from Paralytic Affection.

371. RETENTION of urine may not only arise from the debility of advanced age, for it may occur at any earlier period of life, from the operation of accidental causes, diminishing or destroying the nervous energy, by which the muscular coat of the bladder is enabled to contract.

372. This affection is observed by M. DESAULT to be an occasional consequence of circumstances already noticed (293.), forming, however, one of those results of extreme debility I have rarely met with. In one case of complete retention, from a cause related to that alluded to, I was desired to see a youth, who within a few weeks after marriage had an attack of retention, which obliged me to pass the catheter regularly for several weeks, before the voluntary powers were restored.

373. Retention is said sometimes to arise from the too free use of diuretic medicines, in which case it exactly resembles the same affection of bladder from other causes.

374. Diminished nervous power is a cause of retention that rarely follows injury to the head, but is a frequent consequence of violent strain, or other injury to the spine. Luxation or fracture of the

vertebræ of the neck, back, or loins, generally induces paralysis. An instance of this is mentioned by Mr. WATSON, in a bricklayer, who fell and dislocated the eighth dorsal vertebra. It was presently reduced, but paralysis of the lower limbs was the consequence; and the following day retention of urine came on, requiring the regular use of the catheter for a fortnight. At this period he had involuntary discharge of urine and fæces; though before, it was with the greatest difficulty a stool could be procured, either by purges or glyster. During this fortnight the urine drawn off was very thick, fœtid, and bloody, loaded with mucus, and some few calculous particles. In the third week mortification commenced at various points on the lower extremities, of which he died, and leave could not be obtained for examining the body.* An instance is also mentioned by M. DESAULT, in a traveller overturned and severely bruised, who a week after the accident sought relief for a tumor in the seat of the bladder, which he could not believe to be the bladder, as he was able to get rid of urine. A catheter, however, by removing the contents, and with it the tumor, undeceived him; and as there was no permanent injury to the spine, the regular introduction of this instrument for six weeks was all the assistance he required to aid his recovery.

375. Violent twists of any part of the spine, producing effusion of blood upon the theca vertebralis, will be followed by paralytic affection; sometimes, as happened in a case that I have related in another series†, this consequence takes place at an interval of many months after the receipt of the injury.

376. The effusion of purulent matter within the theca vertebralis will in some diseases produce this affection of bladder, of which, in the work last referred to, I have related a very curious and singularly

* From a MS. in Mr. HEAVISIDE's Museum.

† Practical Observations in Surgery and Morbid Anatomy. Case 30.

interesting example, in which the origins of all the nerves on the basis of the brain, as well as those of the medulla spinalis, were enveloped in a puriform fluid. In one instance I have found this affection, in common with the other effects of progressive paralysis, consequent to a very unusual complaint; a disease of the joint formed between the atlas, and odontoid process of the second cervical vertebra. The capsule of this joint exceedingly thickened, the process itself was forced backward, inducing a fatal compression of the spinal marrow.* In another case I have observed this affection of bladder to be the slow result of increasing pressure from accumulation of water in the ventricles of the brain. (Case 39.)

377. When retention of urine is produced by affection of the spinal marrow, the weakness and deficient sensation in the lower extremities will generally explain the nature of the cause. The patient suffers little, is almost ignorant of his state, and insensible of any derangement in the functions of the urinary organs; although the fluctuating tumor felt above the pubis will at once inform the surgeon of the necessity for passing a catheter.

378. In one instance of this complaint, most unusually obscure in its cause, and unexpected in its favourable termination, a lady declined gradually into the most complete and wretched state of paralysis, having totally lost all power of motion and feeling, in body and limbs; and during near seven weeks that she remained in this unhappy state, I was under the necessity of regularly passing the catheter. The urine had generally an oily appearance, was usually of a deep-brown colour, with a peculiar alkaline foetor, so powerful as to render the apartment almost insupportable. This last circumstance was supposed to proceed from some disease taking place in the inner membrane of the bladder. At last, the constitution began most un-

* This curious disease is preserved in Mr. HEAVISIDE'S Museum.

expectedly to rally; the feeling first, and then the voluntary powers, by degrees returned, and in six months the patient had almost perfectly recovered. In another instance of paralysis, where from the same peculiar and intolerable fœtor of the urine it was impossible to mistake its being a similar affection to the above, I was enabled to see the state of the parts after death, and the appearances confirmed the opinion previously entertained of the former case, demonstrating a peculiar affection of the mucous membrane of the bladder. (Case 40.)

379. Retention of urine will also sometimes arise from that weakness consequent to over-distention of the bladder, where the patient has too long neglected to evacuate its contents.

380. In the treatment required in affections from injury of the vertebral column, local bleeding, blisters, setons, or caustics, near the seat of the injury, include all that aid which surgery can administer, where dislocation is not present. In addition to these means, proper medicines should be directed, where feverish indisposition is present; which attentions will sometimes prevent inflammatory effusion and its ill consequences.

381. The local management of all these affections will consist in relieving the full bladder from time to time by the catheter; until the parts recover themselves, so as to enable the patient to void his urine by the natural efforts.

CASE 39.

Retention, from Paralysis of the Bladder.

A MAN, aged 37, of sober and silent temper, complained of a violent pain in his head, Dec. 1816. He had also for many months been distressed by severe pains in the loins, to relieve which he had worn flannel; this latter complaint was supposed to arise from gravel, of which he had occasionally detected small fragments, passing with his urine.

When the distressing pain in his head commenced, he used, on coming home, to say he could not think what ailed him, for in walking something seemed to come over his eyes, so that he could not see. He was always worse and heavy towards night; but could get no sleep.

A young man who was helper in the same stables observed, he wished he would stay at home, and not come at all till he was better, for he did his work so awkwardly, that he often expected the horses to kick him; as in dressing them, he frequently went to the heels instead of the head.

Dec. 24. Unable to stand without reeling, occasionally with delirium, he was obliged to remain at home. The eyes appeared vacant, and without perception, even when a lighted candle was passed across the face. Medicines were directed, but within a week, more frequently light-headed, he required constant watching, to prevent his leaving his bed. In this state he continued, till he first experienced difficulty in voiding his urine, and soon totally lost that power.

Jan. 4. I was requested to see him, and drew off by the catheter two pints of healthy urine. His speech incoherent, and yet rational. The catheter was passed regularly till his death, but on the third day after I first saw him, he was so unruly, as to require to be confined; the following week he became more tranquil. The pulse was all along very nearly natural. The bowels latterly not only sluggish, but insensible, to a degree; the most active purgatives, and most powerful injections failing. He died *Jan. 13. 1817.*

On laying aside the dura mater, I observed the pia mater to be unusually dry, as if it had been all night exposed to the air. The lateral and third ventricles, were distended with at least four ounces of serum. The brain was rather firm, so that the ventricles did not collapse, when empty.

In the left kidney, the mamillary processes were

of a dark-red colour, as if irritable; this appearance did not extend beyond the basis of each mammilla. There was no trace of calculous matter, nor of that peculiar aspect of the membrane lining these cavities, usually seen in gravel.

The bladder, which was perfectly healthy, contained half a pint of urine.

CASE 40.

Retention of Urine, from Paralysis of the Bladder.

IN Sept. 1809, a woman aged 52, died in the St. George's Infirmary, having been long infirm and imbecile. Six weeks before her death, her stools and urine passed away involuntarily, but she felt no pain. The urine when observed by the nurse, was thick, extremely offensive, and occasionally tinged with blood.

For sixteen days previous to her decease, the water ceased to flow, requiring the catheter regularly; the urine gradually assuming the dark-red or brown colour of putrid blood, and becoming so insupportably offensive, that at last the room in which she lay could scarcely be endured, when the water had been recently drawn off.

A curious circumstance in this case was, that for the last week, whenever the catheter was passed, she had a regular attack of rigor, exactly like the first stage of a paroxysm of intermittent fever.

The only appearance of disease, after death, was in the urinary bladder, which externally was observed to be larger than common. This viscus is usually found contracted upon its contents, but in this instance it lay flaccid, nearly empty, but without tone or disposition to contract. This state appeared to be the consequence of paralysis, and of disease perhaps consequent to it. The coats of the bladder, considering its relaxed state, were not wasted, but the reverse. The cavity of the bladder was in a state of disease. The surface of the mu-

cous membrane was in parts highly vascular and bright, the prevailing tinge being a dark-olive or grey colour. In some points the surface was ulcerated, in small superficial spots; in others the substance of the membrane was black and putrid.

A few ounces of extremely foetid, red, turbid urine, were found in the bladder, which, without further relaxation, would have contained at least a quart.

SECT. IV.

On Retention, from Inflammation of the Bladder.

382. It is observed by M. DESAULT, that “those who have written upon the diseases of the urinary organs, attribute opposite effects to inflammation of the neck, and of the body of the bladder; placing the first among the causes of retention, the second with those of incontinence of urine; under the impression that the bladder inflamed and more sensible, far from being weakened, acquired more energy, and contracted with more force than before. If, however, we were not undeceived by having seen many retentions of urine caused by inflamed bladder, analogy might lead us out of the error. We never see a muscle contract itself under inflammation, and if obliged to act, it evinces very feeble power.” M. DESAULT adds, that “those who have opened bodies have constantly found inflamed bowels distended, not contracted.” Upon this point, as regards the bladder, there may well be a difference in opinion.

383. The functions of the bladder in health, are comparatively simple, but under disease, either of itself, or of surrounding parts, it is under the necessity of assuming new powers. An inflammatory affection of the bladder is, I believe, never confined entirely to the muscular coat, and it therefore seems to me there can be no case in which reasoning by analogy from inflammation in muscles, can correctly be said to apply. Either the mucous mem-

brane within, or the peritoneal covering without, or both, have been always, as far as I have seen, more or less involved in the same state; and consequently the phenomena of irritation become blended with the symptoms of inflammation.

384. Attending to symptoms alone, it appears to me, that did inflammation of the body of the bladder necessarily incur loss of power of contraction, it would be difficult to explain the frequent and urgent desire to pass water, that I have invariably observed, wherever inflammatory symptoms were present.

385. This affection may be induced by exposure to cold, excess in drinking, stimulating diuretics, or other heating medicines. I have known several instances in which it originated from injecting to cure gonorrhœa, and such a case is mentioned by Mr. BAILLIE, in which opiates, bleeding, warm bathing, &c. failed to relieve; but which was eventually overcome by large doses of camphor, at short intervals.* I have known it take place upon the decline of small-pox (Case 41.), and have also occasionally seen it brought on by painful affections of kidney. (Case 42.) Its accession may be known by frequent desire to void urine, acute pain in the seat of the bladder, increased during efforts to relieve itself, the pain shooting upwards to the loins, and down to the extremity of the urethra, a frequent hard pulse, and other symptoms of fever, aggravation of pain upon slight pressure above the pubes; the ease with which a catheter is introduced, the extreme pain when the point of the instrument touches the inside of the bladder, and lastly, the deep colour and inflamed appearance of the urine.

386. Inflammation of the bladder requires the most prompt assistance. The urine must be evacuated; but the catheter, passed with the utmost caution, must be introduced only so far as to permit

* Edinburgh Med. Journ. vol. vii.

the urine to flow, to avoid exciting fresh irritation. M. DESAULT advises a mucilaginous decoction, as of linseed, to be injected into the bladder, previous to removing the catheter, part of such injection being allowed to remain, to lessen the acrimony of the urine; recommending also that the urine be drawn off every three or four hours.

387. The most active measures for subduing local inflammation in other parts (20.), will be frequently required here. Bleeding, cupping, leeching, and warm baths, aided by proper medical treatment, may, according to the particular circumstances of the case be needful, for the removal of this complaint.

CASE 41.

Retention, from Inflammation at the Neck of the Bladder.

A YOUNG gentleman, aged 18, was attacked with retention of urine, Nov. 13. 1819. He was attended by his apothecary, but as the means used for his relief failed, I was requested to visit him on the 15th, and found him in great pain, with a very full bladder, nearly up to the navel. Without the least difficulty, I passed a silver catheter, and drew off above three pints of urine. He was directed to take a draught every six hours, containing ten grains of the compound powder of ipecacuanha. With some variation, a similar medical plan was continued for a fortnight, the introduction of the catheter being required night and morning. The warm bath was repeatedly tried, but like his medicines, failed to relieve him from constant pain, frequent desire, and total loss of power to void his urine. At the expiration of the fortnight, he found the power of expulsion gradually return; and by degrees perfectly recovered.

The above attack was connected with, and appeared to be produced by an eruptive complaint. He had recently taken the small-pox, from which

he suffered rather severely; and the retention of urine had come on suddenly, with severe pain at the neck of the bladder, upon the decline of the eruption.

CASE 42.

Retention of Urine, from Inflammation at the Neck of the Bladder, consequent to Affection of Kidney.

A SERVANT woman, aged 27, found her health failing from hard work, in *Sept.* 1820. The catamenia ceased, she was distressed with a sense of heat and burning at the neck of the bladder, continual desire to make water, and pressure or bearing down. Disturbed often in the night to void her urine, she scarcely passed a spoonful at a time, with severe pain, as if boiling water was pouring from her. Another symptom, from the first, was a violent pain across the loins, which she thought was in the kidneys. At intervals these pains were very severe, and generally most so during the night. She never felt numbness in the lower limbs, but had frequent and severe pains in the thighs, striking down from the back through the groins, and down the inside of each thigh, obliging her to lie down many an hour during the day; frequently with total loss of appetite, and feverish heat and thirst.

March 11. 1821. In an hospital, six weeks confined, with inflammation of the bowels, and flooding; and for most of the period, with retention of urine, requiring the catheter. Her health continued bad after leaving the hospital.

December 7. 1821. She was admitted into the Infirmary, complaining still of pain at the loins, sense of weight and uneasiness in the bladder, and frequency in making water. Mr. HEAVISIDE first directed an astringent injection to be thrown up into the vagina, but after a fortnight's trial, this was laid aside. Gentle opiate and anodyne me-

dicines were now ordered; they answered well, and were continued for some time.

January 22. 1822. Complaining exceedingly of weakness, and total want of appetite, an infusion of bark, with sulphate of magnesia, and tincture of orange peel, was directed. It seemed to strengthen her, but the skin became hot, and there was more distress in passing water; for these reasons, it was laid aside. A few days after, an acute pain in the side, catching the breath, came on; this was removed by blistering and medicine. Subsequent to her relief from pain in the side, the anodyne plan was again resorted to with some benefit, and continued till *April 6.* when I directed a blister to be applied, and kept open upon the loins.

April 25. The pain at the loins greatly relieved by the blister, which slipping from its place, did (perhaps fortunately) more than was intended. The pricking and darting pains down the thighs, and desire to pass water, were much less frequent than before. The urine now, for the first time, deposited a thin stratum of fine albuminous powder, and a little cloud of mucous matter. Upon the whole, she felt better than for many months. The bowels regular, and pulse good, she was merely directed a gentle opiate at bed time. The blister was kept open for three weeks, and then allowed to heal.

May 4. She was so nearly recovered, that she expressed a wish to return to service, and was discharged.

SECT. V.

On Retention, from Gouty Spasm at the Neck of the Bladder.

388. In certain states of gouty constitution, I have not unfrequently witnessed temporary distress from retention of urine; from spasm seizing

upon the neck of the bladder. This is rarely a tedious affection; at least, in the instances I have seen, the spasm has generally subsided before the introduction of the catheter has been urgently required.

389. In addition to gout, M. DESAULT enumerates several other complaints, as rheumatism, lues, psora, suppressed gonorrhœa, &c., as capable of occasionally exciting irritation, and consequent retention. The last of these causes, however, I have known bring on symptoms of so decidedly inflammatory a character, as to leave no room for doubt.

390. The introduction of the catheter merely procuring temporary relief, the object must be by soothing, and other proper means, to relieve the neck of the bladder, by such medical treatment as may restore, if possible, the original affection to its former seat. With this view, diaphoretic remedies may be proper, to favour the return of any eruptive complaint that may have prematurely disappeared. Opiates and anodynes, will be conducive to relief, where gout or rheumatism have been concerned. When, however, these complaints are disposed to be obstinate, daily experience unhappily evinces how little we can calculate on assistance from medicine.

SECT. VI.

On Retention, from Strangulated Hernia.

391. STRANGULATED hernia may be placed among the occasional, though not common causes of retention of urine. I am not aware of its having been so regarded by others, but having repeatedly seen it, and once when from the severity of pain in the seat of the primary disorder it passed too long unnoticed, it becomes right to direct the attention to at least the possible occurrence of this additional source of distress.

392. The annexed cases demonstrate the fact, without need of comment. They particularly show the propriety of attending to this circumstance in our enquiries in strangulated hernia; and if they are answered vaguely or unsatisfactorily, the patient should not be allowed too long to evade the permitting a catheter to be passed. He must be unable to distinguish, by his own feelings, what proportion of his sufferings may arise from the retention; and in this way, if relief is not afforded, the lesser evil may become the most serious, or at least, painful of the two, in its ultimate consequences.

393. In these cases, it appears to me, that the affection of the neck of the bladder is the consequence of sympathetic irritation, as happens in those complaints in which a similar effect is induced by inflammation, or other disorder, either in the lower part of the rectum, or about the verge of the anus. Several important examples of these sympathetic affections of the neck of the bladder, have been lately brought forward.*

CASE 43.

Retention of Urine, from Strangulated Hernia.

May 15. 1822. I was called up early to see a man, aged 60, suffering from severe griping and twisting pains in the bowels. He said he was subject to bilious attacks, and supposed this to be so, although he this morning, for the first time in his life, felt uneasiness and pain in the bladder, without having the power to void any water, notwithstanding constant desire and frequent attempts. The pulse was only 64, and not hard. The skin rather cold. For his relief I directed an aperient mixture to be taken, in small doses, at short intervals.

* Pract. Obs. on the Diseases of the Lower Intestines and Anus. Last edition.

At noon, I found the stomach had not rejected the medicine ; but there had been no action of the bowels, nor any material alleviation in the symptoms. The pulse was below 70. He now said he had occasionally a little fulness at the navel, but did not know if that had any connection with his other complaints ; but as there was neither vomiting or sickness, the part was not then examined.

At 3 P. M., I was told there had been a violent sickness at stomach, during which he had thrown up a large basinful of fluid, principally the medicines taken ; but there had been no stools, although the pains in the bowels were more severe than ever. He had with great straining and repeated efforts passed about a table-spoonful of water, but was in much pain from a full bladder, though he declined having his water drawn off at present. The skin was now warm and moist, pulse 120, and weak. What he had previously mentioned now glanced across my mind, as to the swelling at the navel, and it was examined. It contained a small bit of intestine, just beneath the thin integuments ; it was easily distinguished, and happily as easily reduced, the flatus within the gut returning first, and the bowel after it. The vacant opening was in the linea alba, just above the umbilicus.

He felt immediate relief, and said he was already better than he had been since he was first seized, on the preceding day. He was instructed to send immediately to a proper person to fit on a truss, which during the evening he procured.

At 10 P. M., I found him very feverish, and although a bandage and pad had been fitted on, he had laid them aside, from an idea that he felt more pain than before. On examination, the bowel was ascertained to have slipped down again. He observed, notwithstanding, that he was easier since a second fit of vomiting, that had emptied the stomach, and relieved the bowels from a load of fluid matter.

I again reduced the intestine, and replaced the bandage, which prevented its protruding again. In addition to the aperient medicine, which was continued, he was directed to lose eight ounces of blood by cupping, upon the loins.

May 16. 10 A. M. The cupping had greatly relieved the pain in his inside; he soon after found his bowels actively at work, and had a copious loose stool; then, and not before, he found himself relieved from all the pain, distress, and difficulty about the bladder, the urine flowing without the least straining, in a full and free stream; the bladder was emptied at once of near two pints of water, to his great comfort. Several more stools followed in the course of the night; with which he passed urine, as in health. The medicine was desired to be repeated occasionally, during the day.

May 17. He found himself weak, but otherwise perfectly recovered.

This man a few months afterwards fell ill, and died, from another cause. I obtained permission to examine the body, but found no peculiar appearance to explain the previous occurrence of spasm at the neck of the bladder.

CASE 44.

Retention of Urine, from Strangulated Hernia.

Sept. 3. 1822. I was requested to visit a woman, aged 39, with a rather large strangulated femoral hernia. For the last three days there had been copious fæcal vomiting; and costiveness for the last week. She had been subject to rupture for ten or eleven years, but had rarely suffered pain. Taken into the house, as the pulse was not in a state to bleed, the hot bath was prepared, and this as well as the tobacco-fume injection failing, she was advised to submit to the operation, as the only means for saving her life; her husband, how-

ever, objected to this, and preferred her returning home, where she tried various medicines.

Sept. 7. The tumor much less painful, and less tense; the abdomen still inflated and tender. I was now informed that although the medicines had failed to procure a stool, she had at three this morning began to make water, and had during the forenoon voided a very large quantity involuntarily; having previously had complete retention since five in the morning of *Sept. 4.*, a period of three days and nights, wanting two hours. There was now no distinct feel of tumor in the bladder; and she would not allow a catheter to be passed, as even this, in her mind, looked something like an operation. From this time the urine flowed off freely several pints every day, till *Sept. 12.*, when she died.

On examination, the appearances usual in strangulated hernia, presented themselves. The healthy bladder contained only a few ounces of water. The protruded omentum was universally adherent; but the small extent of intestine ileum, also in the sac, was unadherent. Both the bowel, and omentum, were much inflamed.

SECT. VII.

On Retention, from Tumor, or other Growth, within the Bladder.

394. TUMORS, either of a fungous texture or of a cancerous nature (Cases 34 and 35.), or hydatids formed in the bladder, constitute the most frequent sources of this kind of retention. A very singular specimen of disease is preserved, however, in which a preteratural fold of the inner membrane of the bladder, extending from the orifice of each ureter to the opening into the urethra, forming a valve on each attempt to void urine, at first impeded its free exit,

and at length proved fatal, with symptoms not unlike those that attend in bad strictures.*

395. Few diseases are more distressing, or more uniformly fatal, than fungous or other tumors within the bladder. Now and then, however, the characters even of these diseases do not prove cancerous, and tumors appended by a narrow neck, presenting at the orifice of the female urethra, have been successfully extirpated. A young woman from a strain had gradual retention of urine brought on. This continuing near three years, frequently in pain, and weakened from bleedings occasioned by the constant use of the catheter, she applied to Mr. WARNER, who passing with difficulty his finger by the urethra, found a considerable fleshy tumor, attached near the neck of the bladder. This tumor, first discovered by herself about twenty months before, depriving her of the power of passing her water, was removed by an operation. With a full bladder she was made to strain, when the tumor pressing forth was secured by a crooked needle and ligature passed through its substance. It was next necessary to divide the urethra; when by pulling the tumor, there was sufficient room for tying a ligature round its broad basis. For a few days she had a good deal of pain in the abdomen. On the sixth day the tumor dropped off. From the day of the operation she voided her urine without assistance; and soon perfectly recovered.†

396. A case nearly similar to the above is mentioned by RUYSCH, in which excrescences sprung from the internal surface of the male bladder, the largest, the size of a walnut, being attached by a narrow neck so near the opening of the urethra as frequently to require the introduction of the catheter. Where these tumors form near the neck of the

* The preparation is in Mr. HEAVISIDE'S Museum. See PLATE II. *Fig. 3.*

† Phil. Trans. vol. xlv.

bladder they may sometimes be mistaken for incipient affection of prostate gland.

397. During life, however, the existence of this disease can never be with certainty determined. The point of the catheter, in sounding, may lead the surgeon to suspect the presence of some preternatural substance; but an indurated state of the coats of the bladder, the formation of cells, the existence of fasciculi, or tumors of a totally different kind, either in the bladder, or parts around it, may deceive, rendering opinion extremely equivocal.

398. Neither are we yet acquainted with any successful mode of treatment in this formidable disease. If upon the suspicion of its existence, or the certainty of there being stone, the bladder is opened by the operation for lithotomy, and by the aid of the finger such a tumor is found attached by a narrow neck, it may be either pulled away, or included in a ligature, and the patient may recover. A man operated upon for stone in the Hôtel-Dieu, was found to have a fungous tumor in the bladder. M. DESAULT first removed the calculus, and then feeling the exact position of the fungus, seized it with the forceps, and twisted it away; and the patient was in the usual time sent out, perfectly recovered.

399. Cancerous tumor of large size within the bladder, is sometimes productive of retention. In one such case a man became subject to heavy and lancinating pains within the pubes, for which in progress of time he was sounded, and believed to have stone, by the impression of firm resistance felt in the bladder. At the Hôtel-Dieu, M. DESAULT found in the seat of the bladder a constant lancinating pain, with occasional bleeding, and uneasiness about the glans. From time to time small fragments of apparently purulent flesh passed the urethra, deciding the nature of the disease. After some time, the tumor greatly enlarged, nearly filled

the cavity of the bladder, scarcely admitting the escape of urine, and quite preventing the surgeon of the place passing a catheter. An instrument, however, was afterwards got into the bladder, with slight relief, but a most painful death soon followed. On examination, a carcinomatous tumor, larger than two fists, was found growing from the neck of the bladder, and filling its cavity.

400. In another case, a scirrhus disease was connected with small painful tumors felt in that part of the rectum towards the bladder, attended with great pain, harassing tenesmus, difficulty, and at last total retention of urine; with hourly increasing distress and pain, loss of flesh and strength, from which he was released by death, after six months' suffering. On examination, the rectum much contracted, presented a series of excrescences; some irritable, others ulcerated. The bladder was empty, contracted, and indurated.

SECT. VIII.

On Retention, from Hernia of the Bladder.

401. HERNIA of the urinary bladder, is an event of very rare occurrence. Mr. POTT met with only two instances of it in the course of his practice. In one of these the tumor always disappeared upon emptying the bladder; in the other a part of the bladder was removed by an operation, and the wound healed without a single bad symptom.* A case is mentioned by MERY, of a supposed hydrocele, that always disappeared upon evacuating the contents of the bladder.†

402. Protrusion of the urinary bladder, now and then taking place in parts where tumors very frequently become the objects of operative surgery; it becomes of no less importance to the safety of the

* POTT's Works, vol. iii.

† Mémoires de l'Acad. Roy. des Sciences.

patient, than to the character of the surgeon, to acquire the power of clear discrimination.

403. The fullest and best information upon this subject, is contained in a paper by M. VERDIER, who after giving instances where the urinary bladder protruded alone, states one in which a surgeon called to operate for hernia, on his arrival found his patient dead. Opening the hernial sac, he perceived not only intestine, but bladder also, down in the scrotum. In the protruded part of the bladder were four calculi, the size of small nuts, and a fifth in that portion of the bladder remaining within the pelvis.

404. The following was met with by RUYSCH. “Un marchand d'Amsterdam attaqué d'une grand difficulté d'uriner, ne pouvoit rendre ses urines, qu'en élevant les bourses, et les comprimant avec les mains. Cette incommodité étoit causée par une hernie de la vessie ; ce qui fut reconnu après la mort, par la dissection d'un bubonocèle avec étranglement, auquel il n'avoit pas été possible de remédier ; l'intestine iléon qui formoit la descente, se trouva gangrené, et une grande portion de la vessie étoit passée dans la scrotum.”

405. M. VERDIER, mentions, “Un homme tourmenté des accidens de la pierre, que l'on n'avoit pu reconnoître, ni par l'introduction de la bougie, ni par la sonde, mais que l'on découvrit après sa mort : la pierre fut trouvée dans une portion de la vessie passée dans un des côtés du scrotum, l'autre côté renfermait une portion d'intestin grêle.”

406. The same gentleman relates the case of a peasant, who with retention of urine and œdema of the parts around, had a large swelling at the groin, opened by a country surgeon, who astonished at seeing urine instead of pus evacuated, crammed the wound with lint, and the distress being increased instead of relieved, M. GUYON was sent for ; who released the parts by removing the applications, dressed them lightly, and to ensure the

urine passing by the urethra, kept a catheter in the bladder. By this means he saved the man's life, and the wound healed in two months. He adds, "Un autre, aussi peu instruit, voyant une tumeur inguinale, circonscrite, fort dure, sans changement de couleur à la peau, la crut un bubon vénérien skirreux. Dans cette idée, il appliqua les cataplasmes, et les emplâtres les plus émolliens; enfin ennuyé du peu d'effet de ces topiques, il se détermina à appliquer un caustique sur la tumeur, et à inciser ensuite l'escarre; mais quel fut l'étonnement de ce chirurgien, lorsqu'il apperçut une pierre dans la sac qu'il avoit ouvert; la sortie continuelle de l'urine par la playe, ne laissa aucun doute sur le vrai caractère de la maladie." *

407. A boy with retention of urine had a tumor with œdema in the right groin, opened by STALPART VANDERWIEL; when out dropped a calculus. He concludes, "Puer autem tam per virgam, quam per foramen prope inguen continue tribus etiam post annis lotium excrevit, quamquam hoc sensim minutum, ac tandem sanatum fuerit." In another, "Quindecim annorum adolescentem, cui post diuturnum dolorem, cujus causa erat ureteri inhærens calculus, tandem ulcus in inguine ortum est, per quod ille exiens ægrum dolore liberavit, fistula tantum ibidem superstite, per quam continue guttatim urina stillabat." †

408. A case of this kind, combined with strangulated hernia, obliged M. MAURAIN to operate; the bowel gangrenous was not returned, the bladder so adherent that it was of necessity left in the scrotum. The patient died the next day, and on examination, the adhesions of the bladder to the scrotum and ring, were found to be unusually strong. ‡ In a second case, under M. PETIT's care, "Le malade disoit encore avoir senti plusieurs petites

* Mém. de l'Acad. Roy. de Chir. tom. iv.

† Obs. Rarior. Cent. Prior.

‡ Mém. de l'Acad. Roy. de Chir.

pierres rondes amassées dans la tumeur du scrotum, lesquelles repassoient sans peine dans la vessie, et sortoient ensuite par l'urètre." *

409. M. DE LA PORTE met with a retention in which he felt no distention above the pubes, but only a tumor in each groin, the size of an egg, removed by drawing off three pints of urine. †

410. The bladder has also been occasionally protruded between the fibres of the abdominal muscles; and in the female in the perineum, and through the vagina not very unfrequently (Case 45.), sometimes with prolapsus of the uterus. A young unmarried hysteric woman, subject to a convulsive dry cough, was seized with retention of urine; the catheter was introduced, but with difficulty. The cough frequently inducing the return, and the difficulty of passing the catheter, at last led to examining the vagina, in which a large fluctuating tumor was found; but no urine came by compression, unless while the catheter was in the bladder. The urine evacuated, the tumor disappeared, and the catheter could be easily passed, though the difficulty returned as the urine collected again. ‡

411. The full bladder has also occasionally been protruded before the head of the child, in labour, but the general symptoms in this sort of hernia, the fluctuating feel, the impediment in passing water, together with the power of diminishing or removing the tumor by the catheter, the tumor being always situated in the vicinity of the bladder, should enable the practitioner to determine accurately upon the case, whenever it presents. An instance, however, is recorded in Dr. MERRIMAN'S valuable work, where the distended bladder protruding before the foetal head, was mistaken for hydrocephalus, and very improperly opened. The bladder sloughed extensively, and the poor woman

* Mém. de l'Acad. Roy. de Chir.

† Ibid.

‡ Sandifort. Observationes Anat. Patholog.

was eventually reduced to the distressing condition of perpetual incontinence of urine for the rest of her life. *

412. A very singularly complicated case is published by Dr. WHITE; of a young woman, who after six years of suffering, died from a large tumor formed by a prolapsus of the womb. It was so irritable and extremely painful, as to admit of no attempts towards its reduction. On dissection, the small intestines were in the pelvis, the uterus and appendages protruded, the ureters increased in size and length, and passing down into the prolapsus, where lay the bladder, the fundus turned downwards, with a calculus of four ounces in it, which was supposed to have led to the whole of the mischief. †

CASE 45.

Retention of Urine, from Prolapsus of the Bladder.

IN Sept. 1815, I visited a poor woman, for a loss of power to pass her urine. She was middle-aged, had suffered much from hard work, hard living, and the labour incident to rearing a large family. Here was an occasional protrusion of a soft tumor externally, producing distress, with loss of power to void her urine. This tumor, most commonly troublesome after fatigue, was easily pressed back, or disappeared spontaneously on lying down, and never came on in that position. This protrusion was scarcely ever attended with much bearing down, as she had discovered a mode of relieving herself from the want of power to pass her water, by pressing back the tumor, which always enabled her to empty the bladder, after which the swelling did not for some time return, even under exertion.

Upon examination in the erect posture, I found

* Synopsis of Difficult Partur. 3d edit.

† Med. Observ. and Enquir. vol. iii.

protruding from between the labiæ a large, soft, elastic tumor, evidently containing a fluid. The finger passed readily below it along the vagina to the uterus, but could not be made to pass in any other direction. Reduction was easily effected by the finger, but unless she evacuated the contents of the bladder it immediately came down again.

As this was the whole extent of the evil, I had only to assure her there was nothing of danger about it; pointing out at the same time, that she might prevent its recurrence, by wearing a small light instrument, of elastic gum, so adapted as to support the upper part of the vagina. This, however, as she was satisfied upon the nature of her infirmity, she thought unnecessary, and declined,

SECT. IX.

On Retention, from Displacement of the Viscera of the Pelvis.

413. THE displacement of parts within the pelvis, giving birth to retention, may be either a retroversion, or prolapsus, of the womb, prolapsus of the vagina, or of the intestine rectum.

414. When the intimate connection of these parts with the urinary bladder is considered, it becomes evident that these viscera can suffer no material derangement of position, without involving more or less that of the bladder of urine; and that whatever may be its force in contracting, it will not then have the power of expelling the whole of the contained urine. To this deficient power of action, under such circumstances, must in every case be added an increased resistance from obstruction to the passage through the urethra.

415. In retroverted womb, the os uteri from its new position presses the urethra and neck of the bladder upwards and forwards, against the bones of the pelvis; thus obstructing the passage of the urine. In prolapsus of the womb, vagina, or

rectum, the posterior part and neck of the bladder are, on the contrary, drawn downwards and backwards; circumstances that must always be taken into account in every attempt to pass an instrument into the bladder.

416. When retention is the consequence of retroverted womb, the fact will be easily determined by finding the os uteri, in examining per vaginam, displaced, thrown upwards and forwards, perhaps beyond the reach of the finger; under which predicament the precise state of the case cannot be decided, till a catheter passed, and the water drawn off, may place the parts in circumstances more favourable for examination, and replacement.

417. Should retention be owing to either of the above causes, it will be determined upon reducing the displaced parts, by the effect ceasing when the cause no longer exists. Or where prolapsus of the rectum has given rise to this affection, it will be sufficiently obvious by the difficulty in voiding urine not coming on till after the protrusion has taken place.

418. Retention of urine from these causes rarely becomes serious. It is first necessary that, if possible, the displaced parts be reduced; and where this reduction does not restore the power of passing urine, the catheter should be introduced.

419. Prolapsus of the womb, when reduced, requires that the parts be carefully and constantly supported, by the gentle pressure of soft pads, kept in their place by a T bandage. With the same view for present relief, a pad may be applied to prevent a return of protrusion in the rectum; although the radical cure of this infirmity can only be obtained by an operation which I have often performed with perfect success. *

420. Where, however, the displacement cannot be reduced, nor the bladder be thus enabled to

* Practical Observations on the Diseases of the Lower Intestines and Anus. Last edit.

relieve itself, the catheter should be passed, and the performance of this operation will be much facilitated by giving the instrument a considerable curve, enabling it to follow the presumed course of the urethra, according to the particular circumstances of the case. Sometimes where the metallic catheter fails, one of elastic gum, being flexible, may find its way into the bladder.

421. Should it however, happen, as it sometimes does, that none of these means succeed, and the bladder be in danger of being ruptured, which accident has sometimes happened (435.), it will be necessary, in order to prevent either this, or other serious consequence of over-distention, to puncture the bladder; an operation, the place, time, and expediency of which will be demonstrated in a future part of these observations. (651.)

SECT. X.

On Retention, from Pressure of the Womb upon the Neck of the Bladder.

422. THE period of utero-gestation is sometimes, by the weight or position of the pregnant womb, productive of inconvenience to the functions of the urinary organs, and occasionally induces retention of urine.

423. These complaints most frequently occur either in the latter stages of pregnancy, or come on during the severe pains of labour, when the head of the child filling the space of the pelvis, sometimes produces injurious pressure upon the other soft parts, included within the same circle.

424. Frequent desire to void urine, and deficiency in the quantity passed, although they may be our only guides, are but uncertain signs of retention; as irritable bladder may induce the one, and compression of the ureters the other, of these symptoms.

425. The most important practical rule, in the

management of this kind of retention, is that of carefully attending to it by the catheter for as long as may be necessary. Where it happens during labour, the bladder may in general be readily relieved by waiting for the interval between the pains, when the head of the child, either retiring spontaneously, or gently pressed back, will afford every facility for introducing the catheter, and drawing off the urine. Cases of bladder ruptured during labour have now and then occurred. (436.)

426. Where the womb is enlarged in consequence of disease, it is sometimes productive of retention of urine, which may for a long time require the use of the catheter; where, however, these complaints eventually become cancerous, the retention at last usually gives way, an involuntary discharge succeeding, from ulceration making its way into the bladder.

SECT. XI.

On Retention, from Pressure of the Rectum upon the Neck of the Bladder.

427. THE degree of derangement in the state and functions of the rectum some patients will endure without appearing to regard present health, or future consequences, is almost incredible. Among other inconveniences occasionally induced by a loaded state of the lower bowel, is retention of urine.

428. It is observed by M. DESAULT, that when retention arises from this cause, it operates in the same way as the gravid uterus. It appears to me, however, from repeated observations, that the two cases differ materially from each other. The gravid uterus, I should suppose, would act purely by mechanical pressure; the loaded rectum, long observation has taught me, may be considered to operate in all cases, more or less, by irritation. The mass of hardened bilious fæcal matters constituting the load, extremely foetid and offensive, may well be expected to excite and irritate the bowel and parts

around into a state favourable to the production of spasm.

429. This is one ground for believing irritation from acrimonious contents in the bowel, may conduce to retention of urine. Another reason for this opinion is, my having in various cases observed that acrid, slimy, mucous matter lodged in the lower part of the rectum, any spasmodic tendency or any permanent contraction in the bowel, although perhaps attended with little or no pain, will and do excite spasm at the neck of the bladder, or in other words retention of urine, relieved by the expulsion of the cause of irritation from the bowel, or by any means calculated to sooth and quiet irritability, and compose the disturbed state of the parts.

430. An instructive case is related by Mr. GOOCH, in which with difficulty he passed a catheter, and drew off several pints of urine, where retention had been produced by an immense heap of hardened fæces accumulated in the rectum, which he had great difficulty in afterwards removing, by injections, and various mechanical means. In another case, the same effect took place, from neglect, in paralytic disease.

431. The correctness of the above remarks is abundantly proved by the circumstances and symptoms attendant upon a great variety of cases of irritation or disease, in the lower part of the alimentary canal, already published; which, although calculated to throw much additional light upon the pathology of these parts, it would be out of place to particularly specify upon the present occasion.

432. Whatever may be the state of the rectum, whether loaded with fæces, attacked with inflammation, or subjected to other diseased change, where it induces retention of urine, the catheter, or bougies, or both, according to the circumstances of the case, will constitute the proper local treat-

ment, which must be held subservient to that by which the primary affection may be removed, or, where that is impracticable, relieved.

SECT. XII.

On Retention, from Rupture of the Bladder.

433. WHENEVER, from external violence, or other cause, the urinary bladder is ruptured, the chances of recovery are so small, and the importance of knowing at once the nature and importance of the case so great, that it becomes the duty of every practitioner to render his judgment, upon such a point, at once prompt, clear, and conclusive.

434. The including this accident among the varieties of retention is, I am aware, open to objection; as rupture of the bladder, in fact, incurs effusion, rather than retention. Principally, however, desirous to render these remarks practically useful, and conscious that this accident may at any time become the object of sudden and serious regard to the practitioner, whose very looks are watched by the fearful eye of anxious expectation, I hope the motive will plead an excuse for any apparent deviation from method, when a weightier and more important object is in question.

435. A very instructive though unfortunate case of ruptured bladder, is related by Mr. LYNN. It occurred during pregnancy, in consequence of retrovertio uteri. The catheter could not be effectually introduced, nor could the fundus of the womb be moved from the cavity of the pelvis, into which it had fallen. It was proposed that the bladder should be punctured, from above the pubes, but the patient could not be persuaded to submit to the operation. The following day she said she felt something burst within her, and found immediate relief from pain. A miscarriage followed, and now the catheter passed with ease. No water

being found, it was clear the sensation described, had arisen from rupture of the bladder. The poor woman died early the next day. *

436. An instance, in which the fundus of the bladder was ruptured either in, or soon after, labour, is related by Mr. HEY. The fifth day after confinement, the patient felt something crack at her navel, and pain directly became severe at that part. Peritoneal inflammation came on; and though every proper means was employed, she died, ten days after her delivery. Fourteen pints of urine were found in the abdomen. †

437. In one case in which rupture was the consequence of external violence, a corpulent man, in boxing was thrown, and his antagonist falling upon him, with his knee on his abdomen, he received so much injury as to occasion his death within a few days; during which period he made not a drop of water. On passing the catheter, a little thick grumous blood came away, but no urine. If the instrument was moved ever so gently, when in the bladder, it gave him very great pain, though the mere passing it through the urethra gave none. After death, the bladder was found largely ruptured on its fore part, at or near the fundus. The intestines were much thickened, and inflamed. ‡

438. A man is also mentioned by Mr. WATSON, brought into the Westminster Hospital, with fractured elbow, who died the second day. Retention of urine required the repeated use of the catheter, which brought away very bloody urine. At first, he made a little with great difficulty, the catheter not being passed till next day, when four ounces only of water were drawn off. Towards evening, eighteen ounces more were drawn off, to his great relief. The abdomen was fomented, and glysters, &c. given.

* Med. Obs. and Enquir. vol. iv.

† Ibid.

‡ From a MS. of Mr. WATSON's, in Mr. HEAVISIDE'S Museum.

This man had fallen, intoxicated, from a loft, crosswise, down upon a beam in a warehouse below, and afterwards to the ground, where he was found next morning. He became rather comatose, but felt very little pain, and so continued till he died.

On examination, the os pubis was found fractured on each side its symphysis. A large rounded splinter having been forced through the fore part of the bladder into its cavity, so fixed, that the urine did not flow out freely by the opening, though some of it had escaped into the cellular membrane external to the bladder, to some distance. The splinter was not, however, felt in the introduction of the catheter. *

439. In the following instance, the forcible separation of the symphysis pubis ruptured the bladder. A clergyman riding, his horse startled, and sprung suddenly round. The scrotum became violently ecchymosed, and he felt extremely hurt, but was clear he had received no blow, though at the instant, and since, he felt "as if split asunder." Two days after, passing no urine, a catheter was introduced, and no water found. The scrotum continued to enlarge, and the right thigh swelled, with evident fluctuation. These circumstances induced Dr. CAMERON to believe the urine had escaped, most probably, by the urethra having been lacerated. On the third day, the scrotum punctured, blood and urine flowed out. The fourth day, the right thigh was punctured, with the same effect. Peritoneal inflammation came on, and he died on the sixth day. The parts, on examination, were found very extensively mortified; the ossa pubis wrenched asunder to the distance of four inches, and a rent in the bladder, half an inch in length, a little above the neck, and exactly in the middle, where the ossa pubis join. †

* From a MS. in the Museum of Mr. HEAVISIDE.

† Phil. Trans. vol. xlv.

440. In one case of ruptured bladder, which I was desired to examine after death, the patient only lived a few days (Case 46.); and, in a more recent instance, seen during life by Mr. CHAVASSE; the man, the nature of whose accident could not be traced, had the usual symptoms of peritoneal inflammation, and died on the fourth day. The bladder was found ruptured at the part covered by the peritoneum; the abdomen contained two quarts of urinous fluid, and the bowels were connected together by effused lymph.

441. In these unhappy circumstances, I should recommend, in addition to the vigorous adoption of every antiphlogistic treatment, attention to two points: the one, the keeping a large elastic catheter constantly in the bladder, inserted just so far as to let the urine flow, without getting far enough to endanger its passing into the wound; the other, the constant observance of a sitting posture, in which the gravitation of the urine, if the catheter is properly placed, its outer opening low and constantly open, will rather tend to its running safely off by the urethra, while the pressure of the viscera above will also tend to compress the bladder, and favour its healing, provided the fatal effects from previous effusion are happily avoided.

CASE 46.

Retention, from Rupture of the Bladder.

ON the evening of *Friday, Nov. 13. 1812*, a robust heavy man, intoxicated, was thrown from his horse, over a post, the top of which struck the lower part of the abdomen. He was taken up and carried senseless to bed. The next morning, on the same horse, he rode to town (eight miles); in much pain from bruises upon the lower part of the belly and about the loins.

On reaching London, Mr. BARROW was requested to visit him, and found the lower part of the abdomen, scrotum, and penis, discoloured by ecchy-

mosis. He was in great pain, with a pulse naturally irritable, now very quick and intermittent. He said that since the accident, though he had made repeated attempts, he had totally lost the power of making water. This led to the introduction of the catheter, but no water flowed; the same evening, the instrument a second time passed, no urine followed.

Sunday 15. This morning, the catheter again introduced, without urine; it was remarked, there was in this case the appearance of retention, but no sense of urgent desire to void urine, as happens in actual retention. From the peculiarity of these circumstances, Mr. HEAVISIDE was consulted, by whom the catheter was during the day twice passed with ease into the bladder, without a drop of urine following. It thus appeared, that one of two things had happened, either the kidneys from injury had ceased to secrete, or the urine had some way of escape into the abdomen.

Bleeding, general and local, had been had recourse to, and the most proper medicines given for averting the danger of peritoneal inflammation, which however, came on; and the patient in spite of every effort, became rapidly worse. On the *Monday* morning he had delirium, became violent, but towards evening more quiet, he sunk and expired, just seventy-two hours after the accident.

I was requested to examine the body; upon which was extensive extravasation of blood, as above described. The peritoneum lining the anterior parietes, and that covering the bladder, much discoloured from extravasated blood and inflammation. Upon the posterior surface of the bladder was a large opening, admitting the finger freely into its cavity. A catheter introduced by the urethra, passed through this opening, into the general cavity of the abdomen. On removing the bladder, the cellular membrane between it, the pubes, and adjacent muscles, was loaded with coagulated and

grumous blood, and from the cavity of the abdomen, near the opening in the bladder, a coagulum of blood, of several ounces was taken. About three pints of urinous fluid tinged with blood, were removed from the abdomen, much more remaining behind.

The muscular coat of the bladder, at the point of laceration, had retracted, giving the appearance of a piece cut out, the size of a sixpence; the inner and outer surfaces exhibiting spots of effused blood.

It appears then, that at the time of the accident the bladder distended with urine, was in the fall violently bruised between the projecting bodies of the vertebræ, and the post over which the man fell; and as there was a thick layer of fat, besides muscles, integuments, and clothes, interposed between the post and the bladder; while, on the other hand, the posterior part of that viscus was driven absolutely against the bones of the spine; the part least defended was most injured, the rupture taking place opposite the bodies of the vertebræ.

On Retention of Urine in the Urethra.

442. THE cause of retention of urine in the urethra may exist either in the canal itself, under the form of inflammation, or its consequences; or in the parts surrounding the canal, as happens in enlargement of the prostate gland, or in other tumors external to the urethra; or, lastly, it may be found within the passage of the urethra, as in contractions or other such affections of that tube, or the lodgement of extraneous bodies within it.

SECT. XIII.

On Retention, from Inflammation of the Urethra.

443. INFLAMMATION of the urethra, when violent, sometimes becomes a cause of retention of urine.

The sides of the canal becoming tumefied, the passage through it must be in proportion restricted.

444. Inflammation of the urethra may arise from any common cause, violently stimulating medicines taken internally, or applied externally, the contact of the venereal poison, the awkward and unskilful use of the catheter, bougies charged with irritating substances, external violence, the use of injections, &c.

445. Inflammation of the urethra may be readily ascertained, by intense heat and pain in the passage, aggravated in voiding the urine. The lightest pressure along the course of the canal exciting most acute pain, sometimes inducing a degree of circumscribed tumor upon some part of the canal. The stream of urine being small, the pain and difficulty in passing it great.

446. The most rigid attention, as regards the treatment of this affection, will be required in the adoption of all those means capable of relieving inflammation in other parts. Repeated bleedings from the arm, leeches to the perineum, assisted by the warm bath, aperient and febrifuge medicines, demulcent drinks, and a very low diet, are the principal means of relief in this complaint.

447. Should the retention of urine be complete, and the bladder require to be relieved, a small-sized silver catheter, with the eyes finely polished, directed by a light and expert hand, will perhaps be the best means for drawing off the urine. The smaller the size of the instrument, the less will the inflamed part of the canal be put upon the stretch, and the smoother the surface, the less will be the irritation from its introduction; and as to the rest, the smallest instrument in the hand of a good surgeon, in such a case, can be in no danger of going wrong.

448. Where inflammation and tumor at some one point, is followed by abscess, breaking into the canal of the urethra, it is by some writers consi-

dered indispensable to wear an elastic catheter, till the abscess is healed, to prevent the urine getting in, so as to keep up irritation. In one such case, however, circumstances prevented an instrument being kept in the bladder. A point, however, which appeared to be of little importance, for, so far from preventing, it did not seem to retard the process of healing, which was completed in about three weeks; within which time, all discharge had ceased (463.), and the man had perfectly recovered.

449. As a rule for general adoption, it is in these cases desirable, that by an instrument kept in the bladder, the urine should be conveyed away from time to time, to prevent its getting into, and irritating the purulent cavity of the abscess; the instance referred to only shows that it is not always indispensable, and that where the habit is good, the patient may do well under its omission.

SECT. XIV.

On Gonorrhœa.

450. UPON the subject of gonorrhœa it would be extremely easy to enlarge, but it would be nevertheless unsuitable to the object of the present work, as the whole that is at present known, of practical importance, may be said in very few words.

451. It is clearly established that the same matter which in one person produces gonorrhœa, will in another produce chancre; and that this difference depends on the disposition of the habit to favour the production of the one, in preference to the other effect, of the venereal poison.

452. The seat of gonorrhœal irritation is the canal of the urethra, for the space of about an inch within the external orifice. Mr. HUNTER, M. DESAULT, and others, have found the appearances of slight, or of decided inflammation, in this part of the canal, in examining such as have died with this complaint upon them.

453. Occasionally, M. DESAULT observes, appearances of abrasion or excoriation, occur, but never the formation of true ulceration. I have never myself had an opportunity of inspecting after death the appearances produced by gonorrhœa alone, but in the numerous and various occasions upon which I have examined these appearances where there had been discharge combined with other disease, I have only in one case ever found perfect ulceration (Case 61.); and this was under so extensive a complication of infirmities, as to afford no argument for the urethra's being disposed to ulcerate from slight causes.

454. As to the nature of the matter discharged in gonorrhœa, I have repeatedly examined it under the microscope, as well as most of the other varieties of purulent and albuminous excretions from mucous and ulcerated surfaces, without having been able to perceive any essential difference between pus taken out of an ulcer and pus excreted from the surface of the inflamed urethra in gonorrhœa.

455. The gonorrhœal virus excites no particular sensation in the moment of its application, nor until the irritation connected with inflammation and discharge comes on, which may occupy a very variable period; generally these symptoms are observed within a few days, but sometimes not till many weeks subsequent to infection. The patient first feels an unusual sensation within the orifice of the urethra, perhaps extending to some distance along the canal, rather a sense of titillation than pain.

456. On inspection, the orifice of the urethra appears more open, and the vessels more turgid, than in health. A degree of moisture and discharge soon follows, in some cases pale in colour, and thin in consistence, in other instances of a deeper yellow, thick, and even ropy. Along the lower line of the penis, the course of the urethra is also felt as a full, softish, tender cord.

457. The inflamed state of the inner membrane of

the urethra, changes the properties of its secretion, and the natural mucus, which in health preserves that membrane from the immediate contact of the urine, is rendered soluble in that fluid, so that as often as the urine flows the secreted matter is washed away; and this circumstance, together with the inflamed state of the membrane, explains the burning heat and acute pain in making water, always felt with more or less violence in gonorrhœa.

458. In consequence of excessive irritability in the parts, painful erections or chordee arise. This symptom is generally most troublesome when the patient is warm in bed, and frequently disturbs him from sleep. Not at first very painful, it soon becomes more so, and sometimes produces most extreme distress, as the disease advances. The immediate cause of the pain, under these circumstances, is the violent extension of the canal of the urethra, while in a state of acute inflammation.

459. When the pain incident to the irritation of chordee has attained its highest point of severity, there is generally a perceptible diminution in the quantity of discharge; these circumstances indicate the complaint having reached its acmé.

460. This period is of all others the most important. If the constitution be strong and plethoric, abscess in perineo will sometimes take place, and that very suddenly; or should weakness and irritability prevail, erysipelas, and even mortification may be the result. The inflammatory action also at this time is extremely prone to change its seat, being transferred to the neck of the bladder, prostate gland, or testicle.

461. Where the inflammatory action, thus transferred, settles upon the deeper seated parts of the urethra, a degree of thickening and disposition to permanent contraction may remain long after the inflammation itself is subdued; laying a silent but sure foundation for future complaints of a very different character.

462. Occasionally the inflammation in the cellular membrane surrounding the spongy part of the urethra, will go on to produce abscess, either along the course of the urethra anterior to the scrotum, or behind the scrotum in the perineum. When this happens, the urethra rarely escapes some degree of permanent contraction.

463. When abscess does take place, there is always ground for apprehension, that should the gathering break into the urethra, the urine in flowing perpetually along the canal, will find its way into the cavity of the abscess, and prove a source of fresh mischief. This is by far the most frequent consequence of abscess in perineo, but sometimes the patient will escape unexpectedly well under this accident. A soldier in the 82d regiment, was reported, *Sept. 9. 1808.* I found he had much pain in passing water, free discharge, and a puffy tumor of the prepuce, preventing retraction. As it was doubtful whether there might not be concealed chancre as well as gonorrhœa, the mercurial frictions were directed, for sixteen nights, when his mouth affected, the frictions were laid aside. He now took cold, passed a bad night, with severe pains in the head, back, loins, and bowels; these pains appeared to be of an inflammatory nature. Uneasy about the bladder, he had constant desire to void urine. The next morning there was no discharge from the urethra. Towards noon, the severity of his pains obliged him to go to bed; and in the evening he took some diaphoretic medicines, and a copious perspiration brought relief. The following night he slept little, with constant urgency to pass urine; and early in the morning he felt something give way, and a very copious flow of matter immediately took place from the urethra, continuing for two hours. It appeared that a small tumor had formed behind the scrotum, where he now said he had felt heat and pain for two days before. Perfect ease followed

the bursting of the tumor. A curved bougie of full size, was every day passed with ease into the bladder. The abscess in perineo from the moment of its breaking was not again felt. Under common medical treatment the discharge and other symptoms were soon gone, and within three weeks he returned to his duty, well.

464. The most frequent result of abscess in perineo, especially if complicated with stricture, is the escape of urine into the cavity, and an eventual sloughing, more or less extensive, of the cellular membrane.

465. Should the gonorrhœal irritation be transferred to the prostate gland, it excites a wearisome and distressing sense of uneasiness; a dull, heavy, deep seated pain at the neck of the bladder. The prostate gland thus affected, if examined by the rectum, will be found somewhat tumid, and tender to the touch, which it is not naturally. There may be also wandering pains about the intestine rectum, and perhaps an occasional momentary inability to pass the water. These affections of prostate gland now and then give rise to very peculiar sympathetic complaints; a curious instance of which will be presently mentioned. (Case 47.)

466. When inflammation from gonorrhœa is transferred to the deeper seated parts of the urethra, the irritation very frequently extends itself thence to the testicle; and pain and swelling are the consequence. In some cases, the swelling slowly increases for a week or two, with constant uneasiness, but comparatively little acute pain. Occasionally the affection comes forward rapidly, with extreme pain and symptomatic fever. Capt. F. of the marines, was under treatment for gonorrhœa at Scarborough, in 1809; and was using an injection for its cure. After a week his right testicle became tender, painful, and began to swell. A circumstance so unexpected alarmed him, and he immediately sent to me, to beg that I would call upon

him. He told me what had happened, and showed me the testicle extremely hot, tender, painful, and swelled to the size of a large orange; the violence of pain increasing, with heat, thirst, and a hard pulse at 130.

It appeared that the injection had answered his expectation admirably, for the discharge was gone. For his relief, he was ordered a brisk purgative, to be repeated every four hours; and directed to keep the testicle supported, and wrapped in linen, kept wetted with a cold saturnine lotion; observing the strictest abstinence.

467. By the next day, the bowels were opened, and the pulse somewhat quieter, the testicle was much less painful, and rather softer. The feverish heat lessened, on the succeeding night he got some sleep. By the end of the week, under this plan he was able for a few hours to leave his bed, and in three weeks was well; the discharge from the urethra returning, as the affection of testicle subsided.

468. Where inflammation of testicle has once taken place, it is occasionally very apt to return from the slightest cause. A person, for instance, who has had swelled testicle, brought on in the first instance by the improper use of injections prematurely suppressing the discharge, may subsequently find himself liable to similar attacks, from a spontaneous retrocession of gonorrhœal discharge, perhaps from taking cold, or drinking wine, without the use of any local application. Of this I have seen repeated instances, although this is not a very common accident.

469. Even when the tumor of a swelled testicle is reduced, and the patient convalescent, the greatest caution will sometimes be required. After three weeks' close confinement to bed, under the most active treatment and rigid abstinence, this affection returned upon one patient of mine, the very first time he was allowed to leave his bed;

notwithstanding he only moved in the most gentle manner along the ward of his hospital, with his testicle well supported, and this happened in a constitution which had been to all appearance sufficiently lowered to have rendered it incapable of supporting, much less reproducing, inflammatory action.

470. Under some states of constitution, gonorrhœa may produce much inconvenience, although the discharge be neither checked by injections, nor the inflammation disposed to metastasis. The local affection may operate by establishing a sphere of irritation, extending to the surrounding parts; and giving rise to various distressing nervous affections. Of which the most common is a dull heavy pain about the groins, with a tender, irritable, and perhaps enlarged state of the lymphatic glands. This state of these parts, however, can always be readily distinguished from inflammatory tumor.

471. This kind of irritation induces a peculiar, diffused, and irksome pain. The whole inguinal space feels tender to the touch, and perhaps the inguinal glands are enlarged, but they are comparatively free and moveable under the skin, which is relaxed and moist. The absorption of the venereal virus excites less extensive disturbance. The poison transmitted by one absorbent vessel, passes from the immediate seat of infection to the next lymphatic gland, and upon this, and this only, it usually produces its primary effects. Active inflammation follows, and considerable tumor, most frequently attended with much pain, heat, and throbbing; and in general disposed to suppuration. Tumors from irritation very rarely suppurate.

472. Where the habit is weak, irritable, and disposed to scrofula, the most distressing sympathies are, I think, induced from gonorrhœa; extremely irksome aching pains extend themselves from the urethra to the neck of the bladder, testicles, perineum, and groins; while the increased action upon

the inner membrane of the urethra, spreads externally over the glans and prepuce, with an astonishingly copious secretion of purulent matter. Considering, however, the ease with which the prepuce thus tumefied may be retracted, and also that the pain is still of a dull and heavy kind without material sense of heat, this affection appears destitute of any decided character of acute inflammation.

473. Irritation from gonorrhœa will occasionally induce inflammation of some one of the absorbent vessels, forming a red line beneath the skin, and feeling like a packthread in the cellular membrane. In one instance, I am pretty sure that I have seen the large vein upon the dorsum of the penis inflamed from this cause. A gentleman was under my care for gonorrhœa, in 1811. The symptoms were mild. One night incautiously washing the prepuce and glans in cold water, an œdematous swelling of the prepuce followed, with the appearance of a hard round cord, extending from the root of the glans backward to the crest of the pubes. This cord was thick as a writing quill towards the root of the penis, and very superficial, from this point becoming gradually smaller, as it advanced forward; just behind the glans it appeared to sink down into the substance of that body, and could be traced no further. It was not constantly painful, but subject to occasional irritation, which always arose as an acute pain, continuing a few minutes; commencing near the root of the penis, and extending from that point toward the glans.

This affection after some weeks gradually disappeared, the hardened cord becoming less distinct to the touch, and the returns of irritation less frequent.

474. Had this been an inflamed absorbent, the line so thin as scarcely to be felt, should have been of equal thickness throughout; whereas its diameter, at the pubes one-fourth of an inch, was not at the root of the glans more than one-sixteenth of an inch.

The absorbents pass in lines nearly straight, and when inflamed discolour the skin; this vessel took the serpentine course usual with a vein, producing no change in the colour of the skin. I am not aware that this occurrence has been before noticed as an occasional effect of gonorrhœa.

475. In one other case of gonorrhœa with phymosis, I have observed a hardened cord, nearly similar to the above, form beneath the skin; but this was so far from painful or irritable, that it appeared to be divested of sensibility, giving no sensation when very freely examined.

476. Of all constitutions, that disposed to a mixed kind of inflammation, a combination of erysipelatous and phlegmonous action, appears to be least favourable for the receipt of gonorrhœa. At least I have witnessed one most unhappy instance in support of such an opinion.

477. A healthy looking young man, of fair complexion, and light hair, was admitted into one of the infirmaries of this metropolis, in 1799, for gonorrhœa, which had commenced a few days before. There was copious discharge, much pain in making water, with an unusual and tense tumefaction of the whole penis, the surface very hot, and of a shining red colour. Aperient medicine, and fomentations, were ordered. Inflammation, however, so rapidly increased, that by the next day it threatened the worst consequences; and opium, bark, wine, and porter, were administered under the direction of the physician and surgeon, to prevent, if possible, threatened mortification, which event, however, took place very quickly; the local symptoms excessively severe, the pulse 130, and the skin burning with heat. The disposition to gangrene had no sooner appeared upon the end of the penis, than he complained of great pain in each groin, where the lymphatic glands, from extreme irritation, were already tender and enlarged. The best treatment, medical and surgical, was unavail-

ing ; and the ravage of disease continued to extend so quickly, that in three days, the penis was almost consumed, the inguinal tumors having undergone similar changes, and sinking down from violent inflammation to mortification. The fever typhoid, and destruction still spreading, this poor young man died, completely exhausted by the furious progress of disease, although he was apparently in perfect health nine days before, and had, during his illness, the most kind attention, and the best professional assistance.

478. A frequent desire to pass water, with urgency and straining, constitutes the most usual form of irritation at the neck of the bladder. These symptoms sometimes occur in gonorrhœa, but are so generally the effect of the treatment, rather than the course of the disease, that they hardly merit consideration as symptoms, although occasionally attendant circumstances.

479. Where the inflammatory stage of gonorrhœa has been properly treated without local applications, there may perhaps, for a few days, arise a perceptible degree of irritation, but only such as to excite little attention, and less inconvenience. When, however, injections have been used, they are not unfrequently followed by a most distressing and permanent irritability of bladder ; and instances are not wanting, even within the circle of my own experience, where this organ has from this cause become the seat of incurable irritation and constant misery to the patient, for the rest of his life.

480. The modes of treatment adopted for the cure of gonorrhœa are so extremely various, that it would consume much time unprofitably, to describe them. The following remarks will contain little more than the outline of the plan that I generally prefer, believing it to be as frequently successful as any other, and certainly much more safe than those methods of treatment conducted on other principles.

481. Upon the first accession of the symptoms, the patient should place his diet under some restriction, dependant on state of constitution. If plethoric, he should lay aside or take but little wine or malt-liquor, using little exercise, with an aperient draught night and morning. If the habit of body is less disposed to excitement, the restrictions may be less rigidly observed; but the bowels still kept open, with care to avoid fatigue.

482. As the complaint advances, the symptoms increase, and chordee becomes generally one of the most incessant sources of distress. In this stage leeches may, in some cases, be applied with advantage, aided by light, saline, diaphoretic, and aperient medicines, directed at short intervals. The taking only mucilaginous decoctions, avoiding animal food, and keeping quiet, will generally procure much relief. Should these means not succeed, an anodyne draught will frequently operate well, in allaying irritation, and procuring quiet repose.

483. Some practitioners are in the habit, from the first, of directing the liquor potassæ, continuing its use till the decline of the inflammatory symptoms. This medicine, however, is extremely uncertain in its effects. I have, in some cases, found it answer very well, but in others, it has excited uneasiness and irritation about the neck of the bladder, and more than once, much difficulty as well as straining, in voiding the urine. So that where I now direct this medicine, it is always in combination with some aperient, to prevent its remaining long in the bowels.

484. Where the symptoms have reached their highest point, and are upon the balance towards decline, they will, for a short time, require more close attention. If the least constitutional disturbance, fulness of pulse, heat of skin, or thirst occur, the diet should be rendered still more abstinent, and the diluent system be brought still further into adoption.

485. Should there, at this period, be any manifestation of increased uneasiness or tumor about the deeper seated parts of the urethra, no time must be lost, in preventing the continuance of such tendency; by confinement to bed, with saline diaphoretics in the strong, and compound powder of ipecacuanha in the weak; and also by the free use of various farinaceous decoctions. Where the continuance of these means scarcely arrest the progress of the threatened evil, leeches upon the parts, or cupping glasses near them, must be directed; followed by fomentations.

486. Sometimes, from the previous use of injections, a tumor forms upon the urethra, anterior to the scrotum, and requires to be, if possible, dispersed; as was the case with a gentleman who very lately placed himself under my care. The discharge had ceased; and but for the threatened abscess, and the fear of stricture, he would have supposed himself cured. By careful attention to the bowels, by restricting the diet, and keeping down the pulse, with the constant application of cold lotions to the part, the discharge from the urethra was restored, while the tumor was progressively dispersed; in six or seven weeks the swelling was so nearly gone, as to admit the direction of medicines that quietly removed the discharge, which, by a full-sized bougie passing freely into the bladder, was found to be the only remaining complaint.

487. Occasionally however, abscess will form, either before the circumstance is much regarded, or perhaps in spite of every attention. It will be right upon these occasions, to favour the opening of the abscess externally by poulticing and fomenting, and by watching for the time when an opening may with advantage be made, for evacuating the contents. When this is done, light dressings to the cavity, and poultice upon the part, will be commonly all that is necessary to favour its healing.

488. Should the abscess burst into the urethra, the sudden eruption of matter, with sudden relief from pain, and equally sudden disappearance of tumor, will demonstrate the fact. (463.) In this case, an elastic gum catheter should be passed into the bladder, and retained in its place, to prevent if possible, the urine getting into the cavity of the abscess. This instrument however, to answer its purpose, must be attended to from day to day. If rather too small, I have found it apt to permit the urine to escape by its side, and it then is both useless and inconvenient, conveying perhaps irritation, but certainly conferring no security; if rather too large, it may not only prevent the urine escaping by its side, but may also prevent the matter from flowing off, and the abscess unable to discharge its contents, will then be apt to extend itself, and do further mischief.

489. Where the parts are indisposed to healthy action, abscess may prove both tedious and troublesome. Under these circumstances, it may, in one case, be necessary to adopt a generous diet, to direct tonic and strengthening medicines, and use every means for increasing the energy, and restoring the powers of the constitution; and in another, expedient to promote the establishment of healthy action by laying open the cavity, or making a counter opening, dressing it daily, until healed. During this treatment, it will also be right, occasionally, to pass a full-sized bougie, that we may be assured there is no tendency to contraction in the urethra.

490. Where stricture already exists in the urethra, the obstruction having, perhaps, led the way to the abscess, the urine gets in, and urged on by the powerful action of the bladder, is generally driven into the cellular membrane, to some distance round, occasioning much tumor, and more mischief, the consideration of which will be reserved for a future occasion. (609.)

491. The irritation from gonorrhœal inflammation is occasionally transferred to the prostate gland, but this, I believe, never acquires the least importance, except from improper treatment. Where, however, this part becomes the seat of irritation, the means just pointed out (481.), for relieving any tendency to inflammation, must be had recourse to; after which, the judicious exhibition of anodyne and antispasmodic medicines, provided a gentle, yet free action of the bowels is kept up, will progressively alleviate the symptoms, and at length remove the complaint.

492. When from previous uneasiness there is reason to apprehend swelling of the testicle, the application of a cold lotion and a suspensory bandage to support the testicle, with aperient and other proper medicines (482.), will form the proper treatment.

493. Should the state of constitution be such as to excite any extensive sympathetic distress, with profuse discharge, I know of no mode of procuring relief so effectual as strict care to avoid fatigue, with the observance of a milk diet; confining the medical attention principally to the due regulation of the bowels, for the complaint will not on the one hand, bear the lightest tonics, nor on the other, endure the use of any means that favor debility, without aggravation. After some weeks it may, however, be right to make a cautious trial of some light preparation of steel, which, if it can be borne, may, towards the ultimate stage of such affection, be directed with the greatest advantage.

494. In one case of this description, considering there was no tension or inflammatory heat, I tried the effect of a mild astringent lotion externally applied, hoping to diminish the excessive discharge from the surfaces of the glans and prepuce; it, however, induced much additional irritation and pain in passing water, and was laid immediately aside.

495. Where an absorbent vessel, or a vein be-

comes inflamed, I am not aware that the principle of treatment should, in any material respect, be changed.

496. I have mentioned an instance, the only one I have ever seen in this country, of gonorrhœa falling upon a constitution predisposed to the most extreme effects of excessive irritability. In such cases I know of no means for checking the ill tendency of the habit, unless by restoring the strength of the constitution, by the most nutritious diet, and most powerfully tonic medicines, endeavouring at the same time to diminish the influence of high excitement, and excessive irritability by opiates, so administered as that their continued impression may be kept up in the system.

497. When gonorrhœa has been treated in the manner just described, it usually happens that in the course of a few weeks the inflammatory symptoms subside, the only remaining circumstance being a discharge from the urethra. Provided this symptom stands alone, and the constitution is disposed to assist, there will be no impropriety in directing medicines that may relieve, and by degrees remove the complaint. This, however, is so often attempted, either in a careless or a hasty manner, that with many the use of terebinthinate and balsamic remedies have fallen altogether into unmerited disrepute.

498. Sometimes, though very rarely, these medicines will, in whatever way directed, operate prejudicially; generally, however, they may with proper care, and in proper season, be so ordered as to expose the patient to no risk, while they afford him at least a chance of being cured of a most unpleasant disorder.

499. The single principle that I have found important in the use of these medicines, is to begin cautiously, keeping the bowels relaxed under their administration, and watching their effects upon the system, so that we may be enabled to lay them

aside in time, if they disagree. Sometimes they disturb the constitutional health, bringing out a copious eruption of red spots, in some instances small, in other cases larger, universally diffused, and somewhat raised above the surface of the skin. A few days' suspension of the treatment, a light aperient draught being directed in the interval, will, as far as I have seen, carry this appearance quite away, after which, the treatment may be resumed. Occasionally, these medicines excite an extremely unpleasant sense of constriction about the chest; this is either unimportant, or may require a suspension of the medicines, or prohibit the use of them altogether. These are the only constitutional effects I have ever seen produced by this class of medicines, when carefully administered; and as to the local symptoms of irritation, or other mischief that may arise under their exhibition, if such occur, these remedies should immediately be laid aside.

500. In addition to, or instead of the above means, I have in some cases succeeded in removing a discharge of very long standing, by the regular use of the cold bath; and in other similar cases, have been equally successful by the direction of chalybeate medicines, assisted by occasional aperients.

501. When the discharge gradually diminishes in quantity, ceases at length altogether, and does not re-appear within two or three weeks, I have been in the habit of considering the disease cured, having never witnessed its return. M. DESAULT however, observes that with regard to gonorrhœa, nothing can be more uncertain than the drawing a conclusion upon this point, for that after disappearing for several or many months, it may again return; and can only be considered cured, upon its having ceased spontaneously, as well as permanently.

502. Where, however, as sometimes appears to be the case, almost every means has been tried, without either success or benefit, I cannot help

feeling with M. DESAULT, that, “Il vaut mieux avouer aux malades l'impuissance de l'art, que de les exposer à être victimes de notre ignorance.”

CASE 47.

Singular Complaints, consequent to Gonorrhœa.

A GENTLEMAN consulted me in *April* 1810. He said he was subject to a most distressing and severe pain, which generally occurred when he was upon the water-closet. The pain always came on at the instant when the motion was passing. The severity of the pain was frequently acute beyond all description; at times, it was productive of fainting, and it usually brought out a sudden and copious perspiration. The seat of the affection was invariably the same. It commenced at the anterior point of the sphincter ani muscle, and extended itself for some distance forward in the direction of the urethra.

These attacks, more or less severe, varied with the state of constitutional health. Any fatigue of body, but particularly any vexation in business, uniformly aggravated the complaint. This pain, however, was not productive of any material inconvenience in making water, nor did it ever continue beyond the space of a few minutes.

On enquiry, he was not able to attribute this singular complaint to any particular cause, unless it might in some way have been connected with a gonorrhœa, of which he had been cured about five years before. The discharge, at that time, had certainly been removed by an injection, and he very soon afterwards experienced the first of those attacks of which he still complained.

He had taken several opinions, and one medical gentleman had pronounced it to be the internal piles, while another soon afterward told him it was a stricture in the urethra. This complaint did not very materially interfere with his habits of life, but

he had of late found riding so frequently bring it on, that he had not been able to use his horse and chaise for the last six months. On examination the urethra was found very fairly and equally relaxed, a full-sized bougie passing readily forward into the bladder. The rectum was next examined, where there was no indication of hæmorrhoidal fulness; but on pressing forward to the prostate gland, which felt rather more distinct than ordinary, he started, and said I had now found the seat of his complaint, and had produced the pain which, as he described it, was neither situated in the intestine, nor the body of the gland, but in the old spot, anterior to the sphincter muscle, and extending about an inch forward in the perineum.

With a view to his relief, the compound tincture of bark was directed to be taken every morning, with an opiate in the evening, occasionally, or when the pain occurred; the shower bath to be used every day. He was requested carefully to avoid all such exercise as might tend to heat or disturb the parts locally, and to keep the bowels cool and regular. When the pain came on with unusual severity, he was desired to take a glass of hot brandy and water; a remedy which from its operating to his relief almost instantaneously, he placed more dependence upon than even his opiate. A large-sized bougie was also passed into the bladder twice a week, in order to favour the more complete relaxation of the urethra.

Under this treatment he improved; in the space of three months he was much better, and in about six months he had perfectly recovered.

SECT. XV.

On Retention, from Contusion of the Urethra.

503. INJURIES of the urethra, from external violence, though unusual accidents, are generally when they do occur, productive either of partial or com-

plete retention of urine. The part of the urethra most exposed to violence, in injuries of the perineum, lies so closely against the bones of the pelvis, that the consequence of bruise is generally laceration, and more or less of bleeding into the cellular membrane, or into the canal of the urethra.

504. Where the injury has not been attended with laceration of the urethra, the inflammatory tumor may be treated precisely in the manner directed upon any other occasion (481.), except that in the present case it will be necessary either occasionally to pass a bougie, or perhaps keep an elastic catheter constantly in the bladder, as long as there may be reason to apprehend the formation of stricture.

505. Where the injury is not very serious, there may still be so much irritation and spasm as to prevent the passage of an instrument. When the injury is more extensive and severe, the impracticability of introducing a catheter arises from its point becoming entangled in the lacerated part of the canal, which of course prevents its passing forward.

506. In one instance (Case 48.), where stricture followed from laceration of the urethra, the effect of the accident was a discharge of blood, soon mixed with urine. There is no doubt retention here was at first established, but fortunately a partial relief from the first effect of the injury soon permitted the bladder to keep itself so far clear as to render any further operation unnecessary.

A case of severe bruise of the perineum, attended with peculiar sympathetic complaints, is related by Mr. KINDER WOOD; where the injury was followed by great ecchymosis, and extensive sloughing of the scrotum, perineum, and urethra. On the 12th day the slough separated, and it appeared that the whole of the bulb and membranous part of the canal had come away. Catheters of silver or of elastic gum were kept in the bladder, the granulations closed round by degrees; the accident happened

Feb. 25., and the ulcerated part was completely healed on *July 4.* Very troublesome symptoms now ensued; the urine was not expelled through the urethra. He had a sensation as if the urine passed down to the penis, where the opening had been, then came on violent pains in the belly, rigors, and difficulty of breathing; these continued several hours, when the urine again dropped by the perineum. It then came in a small stream, and the opening having much enlarged, the bladder was emptied, and the symptoms went off. A full-sized bougie could be passed beyond the opening, but not into the bladder. Affections of this nature had come on, as the opening contracted, but not severe till it was quite closed. Since that time the opening having again become small, the urine passed through it with difficulty, attended with the same symptoms, but less in degree, as the opening did not entirely close.*

507. In another instance of this kind, which fell immediately under my own eye (Case 49.), the degree of injury to the urethra must have been great, as no instrument could be passed, which obliged me to puncture the bladder. The degree of tumor from the effusion of blood and urine into the cellular membrane of the penis, scrotum, and perineum, in this case was enormous, and the quantity of coagulated blood liberated upon laying open the tumor very considerable.

508. In another case of a similar description upon which I was afterwards consulted (Case 50.), a complete retention of urine not admitting relief by the catheter, it was found necessary to puncture the bladder; an operation that will be presently considered. (651.)

509. The other points of necessary treatment must in every case be regulated by the apparent extent and other circumstances of the injury. Should

* Edinb. Med. Journal, vol. iv.

the bruise have been extremely severe, the violence of pain, and rapid increase of tumor and ecchymosis, added to the peculiar feel of the swelling, will demonstrate the extensive effusion of blood and urine from the injured part of the urethra.

510. An early deep and free incision should in this case be made through the tumor, which by enabling the urine to flow off, may prevent any further increase of swelling. The bowels first cleared by aperient medicines, or laxative injections, anodyne remedies must be directed to allay pain and procure sleep.

511. Fomentations and poultice, diligently applied, will most beneficially promote the separation of the sloughs, bringing the injured parts into a clean and healing condition. Till this point is attained, the offensive state of the patient frequently keeps up much irritation and fever, and until the mortified parts are separated, and the seat of contusion a healthy granulating sore, it is scarcely to be expected that any attempt to introduce an instrument through the urethra into the bladder should succeed.

512. Fortunately there is very rarely any difficulty in keeping open the puncture made in the operation for relieving the bladder under these circumstances, for as long a time as may be required, even where the canula has been very soon withdrawn.

513. Where the process of healing is once established, fomentation and poultice laid aside, and light dressings of dry lint substituted, a large elastic catheter, occasionally changed, is to be retained in the bladder, and the patient kept quiet, till the parts are healed. After which, the occasional introduction of a bougie will for some months be expedient, to ascertain that there is no disposition to contraction in the urethra.

514. In general the elastic catheter is on every account the most easy and pleasant instrument for these cases, but sometimes it excites irritation, and

cannot be borne ; in these cases the silver catheter will be found to answer best, suffering the parts to heal quietly over it.

515. An instance of this kind of injury is mentioned by M. DESAULT of a postilion, who falling across the axle-tree of a carriage, received a severe contusion in the perineum. Great pain and a retention of urine was quickly followed by a rapidly increasing tumor on the seat of the injury, spreading to the penis and scrotum. Swelling to an immense extent had taken place, when he was brought into the Hôtel-Dieu, having voided no urine since the morning. The catheter was passed with ease, and the bladder emptied. M. DESAULT then made a deep and extensive incision along the perineum, down to the lacerated part of the urethra. The divided cellular membrane was filled with urinous fluid, and at the bottom of the wound, towards the urethra, were many large coagula. After the operation the parts were dressed, the patient put to bed, and kept quiet and cool. The next day the patient was rather easier, all the urine passing by the perineum. From the sixteenth day suppuration well established, the irritation from the wound much diminished, most of the urine passed by the urethra. By the twenty-ninth day, nearly all the urine flowed by the urethra ; but the reduced stream led to the passing of a sound, which stopped at the cicatrix, and a smaller sized elastic catheter would pass no further. The next morning a small silver catheter was introduced, and by moving the point in the manner of a drill, it was passed, though with difficulty, through the obstruction into the bladder. The catheter left in, was in three days replaced by one that being more curved, was more easily worn, although larger. On the next third day, an elastic gum catheter passed, and the patient was enabled to sit up. By the fiftieth day, the wound in the perineum nearly closed, the fistulous opening from the urethra quite healed over, no more urine passed

by the perineum. On the eighty-fifth day after the accident, instruments passing freely, and the urine thrown forth in a full stream, the elastic catheter was laid aside, and the patient left the hospital well.

516. Extensive sloughing of the urethra and vagina now and then takes place, in consequence of the pressure of the child's head, in hard labour. Mr. BARNES has given a case of this description successfully treated by the introduction of an elastic gum bottle into the vagina, with a small plate of fine sponge attached to that part of the surface opposite the urethra; a catheter being kept in the proper canal to prevent accumulation. By this means a constant pressure was kept up, allowing the passage of the urine by the urethra, but preventing its escape by the ulcerated opening. In five months the opening had entirely closed, and the patient had perfectly recovered her power of retention.*

CASE 48.

Retention, from Laceration of the Urethra, followed by Permanent Stricture.

A COAL-HEAVER, aged 64, applied to me for relief, Feb. 5. 1820, on account of stricture. He stated that in 1803 he was kicked by a horse upon the lower part of the front of the pelvis. The immediate consequence of the blow was great pain in the penis, and a dropping of blood from the urethra. There being neither external wound, nor ecchymosis, he walked to the Westminster Hospital, and was desired to keep a cooling lotion to the parts.

Blood, with urine, continued to drop away, and for a long time he had no power to pass his water in a stream, though he always got rid of it without assistance. By degrees, however, he recovered the

* Med. Chir. Trans. vol. vi.

power of retention, the consequences of the accident having never kept him from work.

In 1810, the usual stream of urine was equal to a knitting needle. A surgeon now introduced a small bougie, but found a stricture at four and a half inches, which he could not pass, and nothing more was done. By degrees, a desire to void his water frequently became an additional source of inconvenience, and when he first applied to me *Feb.* 1820, he said he was from this cause disturbed many times in the night. I could pass the smallest sized elastic bougie only four and a half inches, to a point just opposite the edge of the pubes, the seat of the original injury. He observed that beside the almost constant desire to pass his water, which was rendered difficultly, and scantily, he was distressed by severe pains at the loins, shooting down in the direction of the ureters towards the bladder. On consideration, I advised the application of caustic; he said he was anxious to have any thing done that might relieve his suffering, and I therefore, *Feb.* 5, passed down a bougie armed with the kali purum, which for the space of a minute was pressed against the stricture.

Feb. 8. The urine passed much more freely. The stream not materially fuller, but the act of voiding it very much easier since the application of the caustic. The emptying the bladder had always excited much pain and urgent bearing down at the loins and round the hips, but from the hour that the caustic was applied, the symptoms were relieved, and he passed his urine with as perfect ease as ever he did in his life. After this I saw no more of him till the 20th of the following *October*. On enquiry, he said the reason was, that although he did not void his water in so large a stream as when young, yet he had neither felt pain, nor difficulty, in getting rid of it, and was therefore perfectly satisfied and very thankful.

Oct. 2. 1821. Complained of difficulty and pain,

with desire to void his urine every quarter of an hour. He placed before me six ounces of healthy looking urine, at the bottom of which floated a quantity equal to one-eighth part of ropy, whitish, mucous matter. I ordered him a draught with ten grains of the compound powder of ipecacuanha, night and morning.

Oct. 6. At noon, I again applied the kali purum, as before; and from that time till eleven the next morning he could pass no water, though disturbed by incessant urging and straining, and notwithstanding repeated opiates, and anodynes; during the afternoon he had a shivering fit, which continued till six in the evening, succeeded by fever and delirium, which did not leave him till six the following morning. During this attack it was observed that the straining returned regularly every half hour. The feverish paroxysm was as usual followed by copious sweating, and the second day better, the third day he was well.

On the morning of the 7th, in the violence of straining, the pain shooting up the ureter into the left kidney, the water was at length forced out, with very great distress in the back and loins, and he became easier. For several years, as the pain at the back increased, his water had become more thick and cloudy, and had ever since continued to deposit more or less of a muco-purulent matter, which at present was copious, ropy, and attached like a yellow grass to the bottom of the vessel.

Oct. 20. By the warm bath every second day, and by the continued exhibition of anodynes, he was much improved in health, passing his water more freely, but less frequently. The pains at the loins and about the bladder entirely removed. The urine perfectly clear and healthy.

Oct. 28. He said he was as well now as at any time for the last twenty years. He had no pain any where, and passed his water easily two or three

times in the day, and as often during the night ; he was therefore advised to lay aside medicine.

March 1823. This man remained in very good health.

CASE 49.

Retention, from Contused Urethra ; relieved by Puncturing the Bladder.

ON the evening of *Jan.* 3. 1820, a person employed as a watchman, running in the dark, struck himself violently against a short iron post, over which he fell. Forty-eight hours after the accident he was brought into the house. The penis, scrotum, and perineum, especially the former, were enormously ecchymosed. Some leeches had been applied, when he was placed upon the table, to be relieved by the performance of whatever operation might be found necessary.

He suffered extreme pain from retention of urine, which had swelled the bladder into a tumor extending even above the navel. It was difficult to get a probe in between the glans and prepuce ; and quite impracticable to find, through the ecchymosed tumor, the orifice of the urethra. The prepuce was therefore divided on a director, when a catheter passed readily enough three and a half inches along the urethra, and an ounce and a half of dark offensive urine flowed through the instrument. Whether this came from the bladder direct, or otherwise, could not be determined. It was, however, after many persevering attempts, ascertained that no instrument, small or large, could be got into the bladder, by the urethra ; and it was consequently clear that the bladder must be very soon either punctured, or ruptured.

Upon passing the finger into the rectum, the sphincter ani was found contracting itself with more force than I had ever felt it ; the extent of this muscle was also greater than usual, surrounding at

least an inch and a half of the lower end of the bowel. The tumid bladder was very prominent. With Mr. HEAVISIDE'S kind assistance the canula of the curved trocar was introduced upon the finger, and having by this means fixed it steadily in the right direction towards the presenting tumor, the stilet was then carefully passed into its place, and I pressed the instrument gently forward into the bladder. More than three and a half pints of dark-coloured urine were drawn off, the canula secured, and the man greatly relieved, was carried to bed. Fomentations were diligently applied to the contused parts, and an opiate directed to be given every evening.

Jan. 10. Much local pain, and excessive general irritation. On exposing the parts, a large quantity of putrid blood, and sloughy cellular membrane was found to have partially escaped by a rupture of the tense integuments of the penis; a considerable mass of a similar description having made its way out on the preceding day. The integuments of the penis formed one, and those of the scrotum another, still more tense tumor. To relieve the "fire," of which he complained, I made a free opening with an abscess lancet in one of the most projecting and thin points, on the scrotum; from which an audible stream of putrid air, with fluid and coagulated blood, escaped. From the continued stream of florid blood, I was apprehensive some ruptured vessel was still bleeding; in the day, however, the hæmorrhage subsided. To relieve the dry and foul tongue, hot skin, and quick hard pulse, he was directed febrifuge medicines.

Jan. 11. Much easier and better. The parts unloaded, and the feverish symptoms relieved. He was, however, somewhat light-headed in the night. Little urine had passed through the canula in the rectum, most of it escaping by the side of the instrument into the bowel, exciting diarrhœa. The

canula was therefore withdrawn, the bandage removed, and his linen and bedding shifted.

Jan. 15. The tongue and pulse better ; the contused parts clear and clean. Passing a silver catheter by the glans, it now came out upon the surface of the healthy granulations, about an inch and a half along the canal, where apparently near an inch of the contused and lacerated urethra had sloughed away. On examining the posterior part of the ulcer, the opening in the centre of the granulating corpus spongiosum urethræ was discovered. The instrument went on immediately into the bladder, which contained a little healthy urine, the rest having passed by the rectum. The silver catheter withdrawn, one of elastic gum was now introduced and secured by a bandage, was left in the bladder.

April 11. The keeping an instrument perpetually in the bladder, appearing to excite some uneasiness and irritation, a silver canula adapted to the particular purpose, was inserted in its stead, and answered the intention neatly and exactly. The inner membrane of the bladder had latterly excreted a thick mucus, obstructing the eyes of the catheter ; that instrument laid aside, the urine in two or three days became perfectly clear.

April 12. He had entirely recovered his health, and the small remaining space of ulcerated surface being the only deficiency, the opening into the urethra having very nearly closed over the canula, he requested leave to return home to his own country, in Germany ; and was accordingly discharged.

CASE 50.

Retention of Urine, from External Violence, relieved by Puncturing the Bladder, followed by Sloughing of the Urethra, and Consequent Stricture.

A FIELD-OFFICER, on the staff of the peninsular army, met with an accident on duty, *Dec. 3. 1812.*

Ascending an old staircase, a part gave way, and he nearly fell through ; bruising his perineum with violence, against the edge of a plank. Most acute pain was the immediate consequence. He felt constant and urgent desire to make water, but could only expel drops of blood. Tumor and inflammation were somewhat relieved by poultices and fomentations, but as no instrument could be made to pass the urethra, it became necessary to puncture the bladder. The operation was performed by one of the staff-surgeons, then on the spot ; the puncture being made from the rectum, 48 hours after the accident. By the eighth day the bruised parts had suppurated, an abscess had formed and burst ; an attempt now made to pass a silver catheter by the urethra at length succeeded. Unluckily the catheter slipped out of the bladder the next morning, and could not be again introduced.

In the course of the night, subsequent to the bladder being punctured, the canula somehow slipped out of the opening, and came away ; the urine, however, continued to pass freely by the bowel, during the separation of the sloughing mass in perineo.

On the fourteenth day urine ceasing to pass by the rectum, there was a complete retention for two days ; fortunately the slough then gave way, and a rush of urine came by the separated part of the urethra. In a few days more, the slough completely detached, left a clean and healthy wound.

A catheter was now introduced, and kept in. The instrument passed readily down to the ulcerated wound, but the point could only be conducted into the remaining part of the canal by watching the flow of urine. An elastic catheter first used, created such irritation, it was found necessary to substitute one of silver, which was occasionally removed and replaced to clean it. In six weeks the mass of granulations had closed round the instrument, and supplied entirely the deficient part of the canal,

which had sloughed off for the extent of an inch. The external wound very soon healed, he returned to his duty.

Some months afterward he reached England, and came to London; where a surgeon of eminence failing in an attempt to pass a small bougie, said the only mode was to clear the way with caustic. To this proposal, not choosing to submit, he took an opportunity of calling upon me. An elastic bougie one-tenth of an inch in diameter, passed with difficulty through a contraction at six inches. After remaining quiet three minutes, it excited uneasiness, and was withdrawn. The introduction of a flexible gum catheter he was rather averse to, from its having formerly made him always uncomfortable. A silver catheter therefore was selected, of a size rather exceeding that of the bougie; it passed with more ease, remained quiet a longer time, and was removed with less pain than the bougie had been. These circumstances naturally led me to believe silver instruments, in this case, were preferable to those of elastic gum.

The opinion I gave him was, that the application of caustic was unnecessary; for that the urethra seemed disposed to admit of the required dilatation, under proper management, upon much easier terms. A silver catheter, the eyes of which were made very smooth, was passed, and allowed to remain in the stricture a few minutes; till it created an uneasy feeling in one of the testicles. It was then withdrawn, he was requested to keep quiet for the day, suspend the testes, and take an anodyne at night.

Under this plan, the catheter was regularly introduced every second day. After a fortnight the instrument was changed for one a size larger, but as the eyes of the catheter had excited uneasiness in passing the prostatic part of the urethra, I had some silver sounds made, exactly resembling the catheter, but without any openings at the end.

These answered beyond expectation. The occasional uneasiness felt being now trifling.

Upon every increase in the size of the instrument, it was found necessary to direct rest, and an opiate. The neglect of these precautions, or the least irregularity in wine or diet, invariably put him back in his progress, obliging me sometimes to be content with passing a sound of a size smaller than that which had preceded it.

From an accidental neglect on one of these occasions, a swelled testicle came on, suspending the use of any instrument for three weeks.

By these means, the contracted part of the urethra was, in the course of five months, enlarged to a very adequate degree. The instrument that passed with ease at the end of this period, was seven sizes larger than that which passed with difficulty at its commencement; and was only two sizes less than a very full-sized bougie.

On leaving town, he was recommended to carry with him and pass one of the same instruments, every two or three weeks, to prevent the parts from again contracting.

I had the pleasure of hearing from this gentleman in *Feb.* 1816. He expressed some uneasiness at not being able to pass the same instrument he used when he left London; but as the next size smaller was very adequate for every purpose of security, he was advised to rest satisfied with passing it, and at the same time enjoined carefully to avoid bringing any excessive irritation upon the parts.

In 1819, I was favoured with a visit from my patient, who since his last leaving town, was married, and had a family. He stated that as to his local health little if any material change had taken place. He still occasionally introduced an instrument.

SECT. XVI.

On Retention, from Tumors in the Scrotum, Perineum, or Penis.

517. THE free passage through the canal of the urethra is sometimes interrupted by the pressure of tumor, situated in its vicinity. Any inflammatory swelling, collection of matter, extravasation of blood, or urinary calculus, lodged in the perineum or scrotum, may occasionally produce this effect. M. DESAULT observes, that the same consequence has been induced by enlargement of the testicle, hydrocele, scrotal hernia, or by an aneurism of the corpora cavernosa. A swelled state of the testicle, or hydrocele, operating as causes of retention from pressure, I should conceive to be extremely rare cases. I have seen exceedingly large herniæ without their producing any such pressure on the urethra as to induce retention; and in the only instances of this kind where I have observed retention (Cases 43. and 44.), it was evidently the consequence of sympathy with a strangulated state of bowel; and in neither instance did the quantity or situation of the rupture render it possible that it should operate to produce retention by pressure upon the urethra.

518. The formation of encysted tumors in the corpora cavernosa, is one of the least frequent causes of pressure upon the urethra; but this does now and then occur. A man came into the Westminster Hospital, under Mr. WATSON, with a tumor in the penis, having very much the feel of a stone in the urethra. A year and a half before, he had felt a hardness, which, gradually growing larger, had, within the last half-year, prevented his passing urine freely; and now his water was voided by drops only. On introducing a catheter an obstruction was perceived, beyond which it would not pass; it felt much like a stone.

It was extirpated, and proved to be an encysted tumor, within the theca of the left corpus cavernosum penis; pressing in towards the urethra, and almost totally obstructing the canal.

The operation was nice, and afforded a proof of exquisite sensibility in the theca, contrary to the general opinion of ligamentous and tendinous structures. After the first dressings were removed, some water passed by the wound, but most flowed in a large full stream from the urethra. The wound healed fast, the urine passing freely and entirely by the urethra; he was very soon well. *

519. Whatever may be the nature of the cause of pressure, should its removal be attended with delay, it will be necessary to avail ourselves of the assistance of the catheter; should the state of the parts be such as to admit of its easy introduction, it will be unnecessary to keep it in the bladder, as it may be passed at stated and convenient intervals.

SECT. XVII.

On Retention, from Enlarged Prostate Gland.

520. THE prostate gland is a soft body, in figure resembling a chesnut. The functions are important in the economy, as connected with those of the other organs, subservient to generation; but its principal consequence appears to arise from its situation. Placed at the neck of the bladder, it surrounds, and embraces, the canal of the urethra; and although this circumstance is productive of no inconvenience, while the parts continue healthy, it becomes an endless source of difficulty to the surgeon, and distress to the patient, when this gland is affected by disease.

521. In a former essay upon this subject, I remarked there was little variety in the diseases of the prostate gland, as most of the appearances ob-

* From a MS. of Mr. WATSON's, in Mr. HEAVISIDE's Museum.

served may be referred rather to various stages of advance in one and the same disease, than to the progress of affections, specifically differing, one from another. It appears, however, to be, in some points of view, better to adopt the arrangement of M. DESAULT; considering enlargement of the prostate gland as dependent on inflammation, abscess, calculi within its substance, a varicose state of its vessels, or a scirrhus disease of its substance.

522. Inflammation of the prostate gland is sometimes an acute affection, marked by a sense of heat and weight in the perineum, a constant or pulsating pain at the neck of the bladder, and most fatiguing tenesmus. The tumid state of the gland has, by some writers, particularly M. PETIT, been stated to modify the form of the solid matters passed by stool; but the subsequent action of the sphincter muscle, in compressing the fæces, has always appeared to me to render such appearances fallacious.

523. When the patient attempts to pass water, it is slow in coming, and if induced to make repeated efforts, the difficulty is increased, by the enlarged part of the prostate gland being pressed against the neck of the bladder, thus closing up the opening of the urethra. If a catheter is introduced, it passes freely to the prostate gland, where obstruction is felt, the passing which excites extreme pain. These local circumstances are attended with fever, quick and hard pulse, and thirst.

524. These affections are sometimes induced, where, from injudicious treatment, the irritation and discharge in gonorrhœa have been repelled, and the mucous membrane, lining the neck of the bladder and prostate gland, have become affected. It gives rise to a peculiar obscure pain in the seat of the prostate gland, with an uneasy sense of weight at what the patient occasionally describes as the root of the urethra. On examining, per anum, the gland will usually feel rather full, tumid, and tender,

when pressed. In passing a motion, also, this tenderness is sometimes productive of a shooting pain, darting up the gut, with urgent tenesmus.

525. Affections of prostate gland, from gonorrhœa, are not common, and when they do occur, they are so transitory, as to afford, in my opinion, no good ground for presuming that they ever lay the foundation for subsequent disease in that part. Where, however, disorder becomes complicated, and perhaps from injecting for gonorrhœa, irritation is excited in the neck of the bladder, and prostate gland, with severe and extensive inflammation in that part of the urethra which was the original seat of the clap, one of the worst kinds of stricture may be the immediate consequence; and the difficulty in expelling the contents of the bladder will then unavoidably keep up the disturbed state of the prostate gland, and in this way lay the foundation of future disease.

526. In one instance, I found a very singular affection of prostate gland, already noticed, the consequence of using topical applications for the cure of gonorrhœa. It was a species of peculiar irritation, connected with spasmodic action of the muscles surrounding the bulbous part of the urethra. (Case 47.)

527. Frequently, in retention from this cause, the bladder filling to a certain point, the urine afterwards secreted, flows off from time to time by the urethra, a state that may sometimes continue very long, without inducing any serious accident, or even exciting much attention.

528. The activity of the treatment, in this as in other local inflammations, must keep pace with that of the symptoms, to ensure its terminating by resolution. Bleeding, leeches, baths, fomentations, &c., aided by proper medicines, are the means principally to be relied upon.

529. As, however, retention will rarely be prevented coming on, the introduction of the

will generally be required ; and whether this instrument be of elastic gum, or of metal, there may be much difficulty in getting it into the bladder. The prostate gland cannot become enlarged, without pressing the sides of the urethra together, increasing the length, and deranging the course of the canal ; for which reasons, the instrument preferred in these cases, should be rather larger, longer, and more curved, than ordinary.

530. Where the point is kept in a right direction, the instrument in skilful hands will be in little risk of forcing a false passage, even though the catheter be pressed forward with considerable firmness. The grand point is, to be perfectly acquainted with the exact direction of the point of the instrument, and the natural course of the canal, making the point of the instrument pass close round the symphysis pubis, keeping it clear from the posterior part of the gland, till it has fairly reached the bladder. Should the difficulty of introducing the catheter prove extreme, the danger of creating a false passage, in making way into the bladder, may be so considerable, as to render it preferable to perform the operation of puncturing the bladder ; in which case, the canula will not require to be retained long in the bladder, particularly as the speedy reduction of the tumor will probably soon admit the introduction of a catheter, by the urethra.

531. Although it must always be a principal care to avoid injuring the prostate gland, observation has frequently led me to favour Mr. HEAVISIDE's opinion, that this part may sometimes be made very free with, having known many instances in which accidental injury has induced no obviously unfavourable change in the symptoms. In one instance, that ended fatally, the immediate cause of death was evidently peritoneal inflammation, in consequence of gangrene, and rupture of bladder (Case 56.) ; while, in another, the great length of time the patient afterwards lived, and the state of

the parts after death, were such as to afford a strong presumption that the event was not hastened by the accidental rupture of the gland (Case 61.); and the appearances I have seen in examining preparations of these diseases, have generally led me to a similar conclusion.

532. Where the operation of puncturing the bladder has been required, and performed, it may be matter of doubt whether the best practice is in favour of having an instrument occasionally introduced into the urethra, or not. I am myself decidedly in favour of leaving the parts entirely to themselves, for some time at least. M. DESAULT, however, observes, that “*Ici, tout précepte général est d’une application difficile.*”

533. Should inflammation pass on to suppuration, this process not always established in the substance of the prostate gland, sometimes takes place in the surrounding cellular tissue, or in the cellular membrane connecting its lobes; although frequently the gland itself is converted into an abscess, either with or without the destruction of the principal part of its natural structure. M. DESAULT states that where he has found considerable deposits of pus, they have almost always been situated external to the gland, either towards the bladder, or between it and the rectum.

534. The continuance of the symptoms of inflammation, after the first week, will determine the probability of suppuration, and any suspicion of this result will be much strengthened, if the patient complain of feverish heat, preceded by chills, coming on towards the evening; but although these circumstances may indicate a formation of matter in or upon the prostate gland, they afford no precise information as to the exact seat, or extent of the abscess.

535. Some excellent writers have observed that where the collection of matter is external to the gland, the prospect is better than where its sub-

stance becomes the seat of abscess ; but it appears to me that when this part is once involved in disease, its deep situation is such as to render all precise notions of its condition so speculative, that although the importance of the complaint may be great, the practical value of any nice adjustment of opinion, as to the exact condition of each part of the gland, will be extremely small.

536. Where extensive abscess has formed within the substance of the prostate gland, the matter sometimes makes its way out with considerable difficulty ; under these circumstances a catheter introduced for the relief of retention of urine, has occasionally, by accident, ruptured its parietes, and made a way for its escape. Sometimes a similar opening either into the canal of the urethra, the cavity of the bladder, or even into the rectum, is formed by the spontaneous extension of the ulcerative process. Should the deposit have formed between the bladder and rectum, so as to admit of being clearly felt by the finger, M. DESAULT considers that an opening made into its cavity from the bowel will be advisable, and materially favour the healing of the abscess, and consequent recovery of the patient.

537. Should the situation and peculiar state of the abscess have led to its accidental rupture in passing the catheter, the point of the instrument becoming entangled in the opening, may cause embarrassment and delay in reaching the bladder. To avoid this inconvenience, the suggestions already laid down (530.) must be borne in mind.

538. Not very unfrequently, in the examinations of these diseases after death, small calculi are found in the prostate gland, sometimes in considerable number ; I have never found them occur under such circumstances as to lead to a suspicion of their having produced retention of urine ; M. DESAULT, however, remarks that retention does arise from this cause. These calculi, generally small, seldom ex-

ceed the size of a pepper-corn ; but they have been found as large as a cherry. In some instances it has appeared probable that these calculi have dropped accidentally into this situation in escaping from the bladder ; but in others, the peculiar porcelaneous polish that occasionally gives them the appearance of small pearls, independent of analysis, would argue a difference in composition between these and the more ordinary kinds of urinary calculi. (154.)

539. Calculous substances are now and then formed within the substance of the prostate gland, after the operation for lithotomy, from the external wound healing before the deeper seated part of the opening has united, where the urine depositing calculous particles and thickened mucus, the formation of a stone of considerable size has been the result.

540. Occasionally calculus in the prostate gland presents a small part of its surface exposed towards the urethra, and a catheter in passing into the bladder is then pretty sure of detecting the existence of a stone ; although its exact seat is not so easily determined. It may be contained in a sac within the substance of the prostate gland, or in a sac immediately connected with the bladder, or it may be lodged in the neck of the bladder.

541. Where by the catheter, the existence of calculus is ascertained, whether situated in the prostate gland, or in the neck of the bladder, it has been held necessary to perform the operation for its extraction, because in either case it will enable the surgeon to remove the stone. Provided, however, the calculus is seated in the prostate, there will be so much uncertainty as to there being one stone or many, and so much doubt as to the measure of advantage the patient may derive from its performance, that unless symptoms urgently pressed for its removal, I should, in most instances at least, defer the performing or recommending an operation.

542. A frequent cause of affections generally

attributed to the prostate gland, and sometimes productive of retention of urine, is a varicose enlargement of the veins that pass over its surface from the neck of the bladder. That varicose veins sometimes give rise to symptoms and consequences irksome and distressing, is abundantly proved by observation. (Case 30.) I have, however, never seen them project into the cavity of the bladder, although M. DESAULT says, “*Souvent il présente des espèces de nodosités saillantes dans le col de la vessie, et semblables à celles que forment les varices situées dans les autres parties du corps.*”

543. In this complaint, the change does not consist so much in enlargement of the substance of the prostate gland, as in those appearances incident to hæmorrhoidal tumors. One principal circumstance tending to induce this effect of local weakness, has been stated to be habitual confinement of bowels, and frequent efforts to pass a costive motion; the most frequent cause, however, is, as far as I have observed, of a different nature, although productive of the same effect in favouring local congestion. (293.) It does not appear that a varicose state of the vessels about the prostate gland can be easily distinguished; at least I have never during life been able to discern it, in any clearer light than that of conjecture.

544. The introduction of the catheter when necessary, should be managed with all possible caution; a large catheter of elastic gum being preferred, as requiring to be left in the bladder.

545. Where the obstruction cannot be at once overcome, a number of bougies may be passed in succession, each being larger than the former, and retained some hours, by which the passage may sometimes be eventually opened. An advantage in the catgut bougie is, that as the moisture is absorbed from the urethra, the instrument swells, and when withdrawn, the next is introduced with more facility.

546. Should hæmorrhage from the accidental

rupture of a vessel in the urethra occur in introducing the catheter, the symptoms are rather relieved than aggravated; suggesting the benefit sometimes derived from local blood-letting, by cupping and leeching.

547. It has appeared to me, that the wearing an elastic catheter would operate to the relief of this state of parts by the pressure thus kept up; M. DESAULT, however, considers the benefit to arise more from a degree of inflammation excited by the irritation of the instrument, tending to unload the vessels, by inducing a purulent discharge from the urethra, and gradually obliterating the enlarged vessels; while the instrument being retained in the bladder, secures a free passage for the urine from that cavity.

548. The scirrhus induration of the prostate gland is not an uncommon cause of retention in old age, and until this period of life it is never known to take place. In consistence the prostate gland in this complaint varies, sometimes being comparatively soft, at others hard as cartilage. The magnitude also varies extremely; the enlargement in some instances scarcely perceptible, is in others extremely obvious. I have one patient at the present time, in very good general health, in whom the prostate gland may be felt pressing into the rectum, at least equal to the size of a large orange. In Mr. HEAVISIDE'S Museum are several specimens, that are very nearly of this magnitude.

549. In some instances, the first symptom of this disease is some degree of impediment in passing water, increasing more or less quickly in proportion to the growth of the disease, till eventually the flow of urine is altogether prevented. In other cases the symptoms are from the first connected with some degree of irritation at the neck of the bladder, the frequent necessity for voiding the urine, and the difficulty in passing it, aggravating the severity of the complaint.

550. The secretion from the enlarged prostate

gland is usually much increased in quantity (106.), becoming tenacious and ropy ; the urine in which it is contained throwing off an offensive odour, and passing quickly into putrefaction.

551. Should the impediment to the expulsion of urine be considerable, the coats of the bladder, having to overcome preternatural difficulty, are under the necessity of making increased exertions, and the muscular coat thus acquires considerable increase of strength and thickness, while the cavity of the bladder is in the same proportion diminished, similar to what happens in stricture in the urethra.

552. When the case becomes complicated, and to enlargement is added irritation, the frequency and urgency of straining aggravates every symptom, till at length a violent degree of inflammation in the mucous membrane of the bladder sometimes takes place, which in its turn becomes a cause of still increased irritation ; and the efforts at contraction, rapidly increasing on the one hand, the congestion and disturbance in the prostate gland, seldom fail on the other in extending the inflammatory action to the muscular coat of the bladder ; a change that usually ends in a permanent consolidation of structure, and diminished power of expansion.

553. Where either from this or any other cause, the difficulty in expelling urine is considerable, a diminution in the quantity of urine secreted very commonly takes place. This circumstance has been regarded as arising from the free passage of the secreted fluid being checked, by which the contained urine keeping up a degree of pressure within the kidney, the process of secretion is frequently retarded, and sometimes suspended ; as happens from the irritation of calculi in the kidneys. (27.)

554. The inconveniences resulting from this arrest of secretion will be extremely various, dependent on constitution, degree of obstruction, and the quick or slow progress of the disease. Should the disease move on slowly, the consequent pres-

sure within the kidneys increases very gradually, and these glands will then be found to possess a power of adapting themselves very wonderfully to the difficulties under which they are placed; the whole fabric of the kidney becoming more or less expanded by distention. (60.) But should the rapid progress of the disease bring on early and complete retention of urine, the resistance from the full bladder preventing more fluid flowing in by the ureters, a pressure is induced, the occasional consequence of which is a sudden and complete arrest of secretion; and unless this pressure is removed by the timely introduction of an instrument to empty the bladder, the kidneys soon become incapable of renewing their functions, and the patient sinks into a state of coma, terminating fatally.

555. As a complete retention of urine is one of the most common, and sometimes most early symptoms (Case 51.), it becomes necessary to consider the kind of catheter that under these circumstances will answer best. M. DESAULT, who admits the occasional difficulty of the operation, prefers a small to a large-sized instrument, as more likely to evade opposition. I have, however, in these cases, tried all kinds and sizes, and cannot help feeling a decided preference to the recommendation of Sir E. HOME, who always selects one of the largest dimensions. In some instances a very large silver catheter, in others one of elastic gum upon a stilet, or perhaps one of the soft metallic instruments, will be most easily made to pass into the bladder.

556. A catheter or bougie frequently passed by an unskilful hand, or by the patient himself, is sometimes found to lose the right direction of the urethra at its curvature, pressing for some time obliquely, produces a degree of depression, pushing the inner membrane of the urethra before the point of the instrument, and raising it into a transverse ridge. Thus a slight depression becomes a cavity, and the cavity a tube, which according to circum-

stances, may in time lead out from the posterior part of the urethra towards the rectum, or pass along in a line parallel to that of the natural canal. Should this accident occur in the prostatal part of the urethra, the false passage may take its course through some part of the substance of the prostate gland (Case 61.), or as in the other part of the urethra, form a passage parallel to the proper line of the canal, and passing between the substance of the prostate gland, and the membrane covering it. I was some years since requested to open the body of a physician, long subject to strictures, for which he had himself passed bougies, and had produced two false passages. One of these, anterior to the verumontanum, passed obliquely out for the extent of one-fourth of an inch, forming a cul de sac; the other, situated higher up, passing between the substance of the prostate gland, and its inner membrane, to the extent of five-eighths of an inch, again opened into the cavity of the bladder.*

557. Where the urgency of symptoms has required immediate relief, the obstruction absolutely preventing the introduction of the catheter by gentle means, it has sometimes been held advisable to accomplish this purpose by force. In some cases this has been done, and a practicable passage has remained for the future passage of an instrument without any apparent ill consequence. In one such instance, however, a very excellent anatomist, performing this operation, at the earnest entreaty of his patient, passed the catheter through the body of a very vascular and irritable fungus that had sprung up from the internal surface of the diseased prostate gland. The patient, instantly thrown into the most excruciating agony, survived only half an hour. This, however, was one of those accidents quite impossible to be provided against; and supposing for a moment that the surgeon could

have been previously and perfectly acquainted with the state of the disease, and had punctured the bladder in any other way, he could only have lengthened out for a few days, or perhaps a few weeks, a wretched existence.

558. In one instance, mentioned by Mr. HUNTER, a catheter was pushed through the substance of a diseased prostate gland, hæmorrhage into the bladder took place, and a large coagulum forming in that cavity, prevented the urine passing off when the catheter was introduced, and the patient died. Persevering endeavours have, however, sometimes succeeded in removing these consequences of hæmorrhage into the bladder. (83.)

559. Should the enlargement and excitement of the prostate gland be considerable, the quantity of its secretion may be so much increased as even to create a difficulty in voiding the urine. The urine, received into a tumbler, the diseased secretion from the prostate forms a transparent colourless deposit, sinking at once to the bottom, which stirred up is ropy and tenacious like the white of egg; frequently this matter forms one-sixth of the contents of the bladder.

560. The treatment, independent of what relates to the use of the catheter, will in the early stages require the means pointed out for the relief of inflammation (485.); as to the rest, the remedies already mentioned as useful in alleviating irritation and disease of bladder, will in the present case be equally necessary and useful. (312.)

CASE 51.

Retention of Urine, from Enlarged Prostate.

A HEALTHY sea-faring man, aged 58, left Sunderland about noon, *August 2.* 1808, at which time he made his water well as ever. Two hours after, he tried, and could not pass a drop. He remained in this state till next morning, when his vessel reached Scarborough.

The moment the anchor was down, he came

ashore, and his surgeon tried to pass catheters, silver and elastic, and bougies, but failed. On the evening of the 5th I first saw him, and found the bladder full, tense, and extremely painful. He had lost eight ounces of blood, taken repeated opiates, been immersed in the warm bath, and had embrocations to the belly. It was stated there was an obstinate stricture, and it was proposed to puncture the bladder. During the forenoon he said a little water had dropped away, but soon ceased. He was in extreme pain, the bladder forming a very prominent tumor above the pubes.

It was determined in consultation to make one more attempt, previous to puncturing the bladder.

Both the attendant surgeons failing, they requested me to try. The silver catheter, of middling size, passed so freely along to the prostate gland, it appeared to me stricture had nothing to do with the obstruction. Under this impression, the direction of the point of the instrument was occasionally varied, keeping it close up behind the arch of the pubes. In this way the point in a few minutes was felt to slip over an elastic projecting point of the tumor, passing at once into the bladder. Seven pints and a half, by measure, of urine were drawn off, to the infinite relief and comfort of the patient.

The same evening the attendant surgeons tried, but failed, to introduce the catheter. The next morning he sent to request me to pass the instrument for him, as he was going out of town. Subsequently the patient entreated me to pass the catheter regularly for him. Examining by the rectum, the prostate gland was felt considerably firm and enlarged.

After the first ten days the silver was exchanged for the flexible catheter, passed on an iron stilet. In the beginning of *September* his health was fast improving, and as he was very anxious to go to sea again, I took some pains to teach him to pass the catheter for himself; although with the hand of a sailor he at first acquitted himself awkwardly. To-

wards the middle of the month the urine began again to flow off by the natural efforts, at first seldom, and in small quantity; but as he improved, the natural powers perfectly returned. On repeating the examination, the enlargement of the prostate gland had nearly subsided, and on the 27th the catheter was finally laid aside, and he returned to his ship.

CASE 52.

Retention of Urine, from Enlarged Prostate Gland.

September 24. 1817. I assisted a professional friend, in examining the body of a man, aged 44, who had laboured under aneurism of the aorta. About two months previous to his decease he complained of pain, frequent desire and difficulty in voiding his urine; and in two or three days more entirely lost the power of passing his water. The catheter on the following day brought away near two quarts of healthy urine; but the difficulty in voiding it still remained, though sometimes partially relieved by opiates. The catheter regularly passed, the urine was observed occasionally tinged first with blood, then with filmy coagula and purulent matter, so as to impede the escape of urine through the instrument. Latterly, difficulty experienced in its introduction, suggested the propriety of leaving the catheter in the bladder.

In the examination of the body, the membrane lining the pelvis of the left kidney, was found thickened and covered with a fluid, between the consistence of pus and mucus. The right kidney was affected in a similar way, but to a less degree; its ureter was of a dark red colour, the inner membrane being extremely vascular.

The bladder, neither contracted nor thickened, contained some purulent fluid, similar to that passed; with shreds and thin expanded films of coagulable lymph, of a yellow pulpy texture, some as large as a sixpence. Several of the smaller

shreds were still adhering to points of the surface from which they had been effused. It appeared probable that the whole of the lymph had been thrown off by the mucous membrane lining the bladder; which exhibited many dark spots, from clusters of small vessels of a grey colour.

The prostatal part of the urethra, highly vascular, had a large ragged opening communicating with an abscess within the cavity of the prostate gland, which was considerably enlarged.

In the above case, it appeared most probable that the affection of the prostate gland had taken the lead, and going on to suppuration had thus induced spasm, and retention of urine; and that the abscess having burst, the matter not able to make its way forward, had flowed into the bladder, bringing the surface of that viscus into the disturbed state in which it was found.

CASE 53.

Retention of Urine, from Diseased Prostate Gland communicating with the Rectum.

A LABOURING man, aged 35, was admitted into the infirmary *Feb.* 1815. He said that in 1800, he had been long employed carrying heavy loads, which he supposed too great for his strength, as he found his loins give way very much, and he sometimes perceived a diminished power of retention.

In 1806, he was confined many weeks by a venereal chancre and gonorrhœa; for the one complaint he had used mercurial frictions, for the other injections. The injections had very much aggravated the frequency, pain, and difficulty in making water, and these symptoms gave him much distress for many months after, although in other respects his health was in due time restored.

In 1810, an abscess formed in the perineum. Obligated to walk twenty miles a day, in hot weather, he thought produced the inflammation, which

obliged him to keep his bed ; the swelling was poulticed, fomented, broke, and became easy. Although with difficulty, he generally was able to get rid of his water ; a very small bougie would not at this time pass, because of stricture. In the course of a month the abscess healed, but within a twelvemonth, owing to a fall, the cicatrix gave way, and urine again oozed from the perineum, and from this time generally passed as freely by the wound, as by the urethra.

In 1815, a fresh attack of inflammation came upon the perineum ; during the violence of which attack, for nearly a month, very little urine passed by the urethra. When the abscess broke, a large discharge of offensive matter was followed by a free flow of water. The fistulous opening, not far from the anus, was found by a probe to extend itself forward in various directions towards the scrotum, and bones of the pelvis.

For several weeks his health was much on the decline, apparently owing to the excess of unhealthy and foetid discharge. The bowels, always disordered, were sometimes too costive, but more frequently too much relaxed. In *April*, as the proportion of urine voided by the urethra still diminished, another attempt was made to pass a bougie, but the smallest was stopped within half an inch of the orifice. He had been repeatedly advised to allow proper means to be adopted for removing the obstructions in the urethra, but he could not now be prevailed on to admit of any thing more being attempted for his relief. Towards the close of the month, with repeated attacks of diarrhœa, constant tenesmus, and much pain, he had frequent watery motions, apparently urinous. His appetite now so completely failed, he could take no support whatever. Under this accumulation of distress he continued to struggle, till *May 9*. when he died.

Several fistulous openings in perineo, led to a space covered by diseased integuments. The cel-

lular membrane surrounding the abscess, loaded with effused lymph, was converted into a consolidated mass, like gizzard, and full of sinuses burrowing in every direction.

On laying open the urethra, the external stricture near the orifice was somewhat relaxed, but from this point to the extent of two inches and a half from the external opening, the diameter of the canal was much diminished. The urethra had at this part suffered from violent inflammation; and extensive effusion of coagulable lymph, into the cells of the corpus spongiosum, had produced an unusual and permanent firmness of contraction in the canal. The inflamed part of the membrane lining the urethra was contracted, thickened, and of a more firm texture than natural, still retaining in some degree the inflammatory blush.

At the bulb of the urethra was a firm stricture, so closely contracted that it was scarcely possible in the relaxation of dead parts to pass a silver probe, no larger than a bristle, through it. This stricture was only one-sixth of an inch in extent.

Finding the rectum and bladder closely adherent, a part of that intestine had been dissected out with the disease. The inner membrane of the gut was of a very unhealthy colour, and where it was adherent to the prostate gland, had somewhat of a fungated appearance; more closely examined, an opening was at this part found, by which a probe passed from the cavity of the bowel, into a large abscess within the substance of the prostate gland.

The fundus of the bladder, divided by a longitudinal section, discovered a small abscess, full of thick healthy looking pus; seated between its peritoneal and muscular coats. The parietes of the bladder were much thickened, its cavity much diminished, and its inner membrane of a lurid colour, and highly vascular.

The abscess in the prostate gland contained a thick, brownish, yellow matter. Some parts of the

cavity had a fungated appearance, while others had formed little recesses, in which were lodged a considerable number of small rounded calculi. Some of these calculi were of a dark-brown colour, but others, when dry, had the colour and polished appearance of small pearls.

Between the stricture at the bulb, and the neck of the bladder, were several fistulous openings, leading out from the urethra; some of these connected with the abscess in the prostate gland, and consequently with the opening into the rectum, and others communicating with the fistulous passages in perineo. *

CASE 54.

Retention of Urine and Ulcerated Bladder, from Diseased Prostate Gland.

A GENTLEMAN, about 50 years of age, had been long subject to enlarged prostate gland. The inconveniences to which this at first gave rise, were, as generally happens, only occasional. As the complaint increased, the necessity for having recourse to the catheter increased with it, added to which the operation itself, at first easy, became one of difficulty. In the course of time his health gave way, he lost all power of expelling his urine, and was confined at first to his room, and then to his bed.

While lying in this state, the catheter passed regularly, he one day felt pain come on in the lower part of the abdomen, quickly increasing to intolerable severity, and producing screams, groans, and delirium. These pains, in spite of every means for the relief of inflammation, continued to increase. Upon introducing the catheter as usual, the bladder was now found for the first time empty.

The severity of the above attack continued for

* See PLATE IV.

twenty-four hours only, when drowsiness and coma supervened, which in twelve hours more terminated his existence. On the following day I was requested to examine the body.

On laying open the abdomen, an effusion of purulent matter and coagulable lymph was dispersed among the small intestines, and in the cavity of the pelvis. On the peritoneal coat of the bladder were several shreds of adherent lymph; by several of these the bladder was connected to the peritoneum above the pubes. Pressing the bladder, a jet of urine sprung from a point upon its surface; here a small hole was found, by which a probe passed at once into its cavity.

It was thus apparent, that the immediate cause of death had been peritoneal inflammation, caused by the escape of urine into the abdomen, through an ulcer in the coats of the bladder. This conclusion was borne out by the state of the inner membrane of the bladder, upon which were several small ulcerated spots, though only at one point had this process extended itself to the peritoneal coat.

The prostate gland, much enlarged, was the seat of a considerable abscess, which had extended itself by forming sinuses for some extent beyond the limits of the gland, burrowing between the diseased and thickened coats of the bladder.

Several duplicatures in the membrane lining the prostatal part of the urethra were observed. The deepest depression extended one-eighth of an inch out of the course of the natural canal, an extent quite sufficient to have given a complete false passage, had any instrument been incautiously pushed forward in that direction. These folds, all situated on the posterior part of the urethra, might have been avoided by an instrument having sufficient firmness and curvature to allow of its being kept in contact with the superior and anterior part of the canal in its way into the bladder.

CASE 55.

Retention, from Enlarged Prostate, relieved by Puncture of the Bladder.

IN the early part of *June* 1820, I was requested to visit a gentleman, between 60 and 70 years of age. He had a severe paralytic attack in *August* 1818, which was soon followed by a retention of urine, which on the first occasion admitted a catheter; but on its return soon after, obliged Mr. ABERNETHY to puncture the bladder, as it was impossible to get any instrument through the urethra. The integuments covering the linea alba were first divided, and the bladder then punctured with a trocar. A few days after the operation, the right passage was found, and a catheter from this time kept in the bladder by the urethra. It was, however, many months before the opening made by the trocar closed, and the urine occasionally escaped by it even after it had apparently healed.

His complaints to me were principally of pain in the region of the prostate and bladder, and more especially at the glans, with frequency in making water, and most severe pain at the close of the act. The pulse was natural, but the tongue furred. I found the prostate gland much enlarged and very tender, examined by the rectum; but a large silver catheter passed readily by the urethra, although the tumid gland was felt in traversing the prostatic part of the canal.

Unfortunately, the relief which in this case might have been derived from the use of proper medicines, was prevented by the unhappy and perverse temper of the patient. Mr. ANDERSON, who attended with me, paid him every attention; but however urgent the symptoms, the effect of remedies could never be calculated on, as he always did what he pleased, and rarely what he was directed.

Towards the end of the month the tongue as-

sumed the typhoid state; he gradually sunk, became comatose, and died. Unfortunately, leave could not be obtained for examining the state of the bladder.

CASE 56.

Retention, from Enlarged Prostate, relieved by Puncture of the Bladder.

A ROBUST man, aged 75, requested a surgeon to visit him, *November 14, 1817*. On the previous day he had voided a large quantity of urine, but from that time not a drop. His apothecary, who had seen him on that day, had attempted to introduce instruments to no purpose; and when his surgeon arrived, he found him bleeding profusely from the urethra. Every endeavour to pass an instrument again failed; he was therefore directed the warm bath, an aperient draught, and anodynes.

November 15. 10 A. M. The full and painful bladder was felt high up in the abdomen, the opening medicine had operated, but no urine flowed, nor could any instrument be got into the bladder. Very severe pain in the seat of the bladder now came on, and considering that he had waited long enough, his surgeon passed a finger into the rectum, and found a very enlarged prostate gland, extending nearly as far as the finger could reach, and beyond this a very distended bladder, which pressed the sides of the rectum together, explaining the failure of several attempts to throw up an injection.

The bladder was punctured by the rectum, and two full quarts of a chocolate-coloured extremely offensive urine were drawn off by the operation. An elastic catheter, introduced through the curved canula of the trocar into the bladder, the canula was removed, and the catheter secured to a proper bandage; the patient was put to bed.

November 16. About half a pint of dark-coloured urine had passed by the sides of the catheter. He had passed a tolerable night, was comparatively free

from pain, and took nourishment. Towards evening the urine again passed freely by the sides of the catheter, but on removing the peg none flowed through the tube.

November 22. Little urine having passed through it, the catheter was withdrawn. The same evening increased pain and tension of the abdomen coming on, some leeches were applied to the region of the bladder.

November 24. The local pain much increased, not a drop of urine now passed either by the bowel or the urethra. The distress and tenderness above the pubes continued to become worse; towards evening he sunk, and on the following morning died.

While the bladder was full, the pulse was strong and hard, at 90; after the operation it became weak and low; for some days prior to his decease, running on to 130 in the minute.

I was requested to examine the body, which was to an unusual degree loaded with fat. The contents of the pelvis were first dissected out, to render the exact state of the disease more clearly demonstrable.

The bladder was much enlarged and flaccid; towards its fundus were several large gangrenous spots, two of which fallen into ulceration, had burst through the peritoneum, in consequence of which the urine had escaped into the abdomen. The cellular membrane between the peritoneal and muscular coats of the bladder, was in several places of a lurid colour, œdematous and putrid, from the diffusion of urine through its texture.

The prostate gland formed a very large tumor, each of its lobes being much increased in size. There was no stricture, but one false passage was found about the middle of the urethra, and several in its prostatal part. The magnitude of the prostatal tumor had been the means of preventing the instrument clearing the diseased gland, the trocar having passed through the third lobe, in effecting

the puncture. The canal thus formed had remained pervious, without however inflammation or other mischief appearing to have been induced by the accident.

It appears probable, that in the early stage of the complaint a degree of inflammation had existed towards the fundus of the bladder, which from the exhaustion of power incident to over-distention, had passed rapidly forward, to mortification. The urine escaping into the abdomen had brought on a certain degree of peritoneal inflammation, but without inducing effusion of coagulable lymph.

CASE 57.

Retention, from Enlarged Prostate, wounded in the Attempt to draw off the Urine.

MR. WATSON was sent for to a gentleman, aged 73, for retention of urine, none having passed since the day before. There was little pain or distention of bladder; but by the rectum, the prostate gland was felt much enlarged. The catheter was passed, and thought to be in the bladder, but nothing was discharged but some clotted and fluid blood. Yet even this evacuation eased him very much. A bougie also, was passed, as it was thought, into the bladder, without any difficulty; but no water followed. Dr. HEBERDEN, judging the kidneys to be probably more in fault than the bladder, ordered bleeding, warm bath, and appropriate medicines.

From the ease with which it was introduced, and from the length to which it passed, it was thought the catheter must have reached the bladder. But the instrument felt confined, and the end somehow locked in, so that it could not be turned freely, as it can when in the bladder; and knowing he had a stone in the bladder, neither could that be felt. These were reasons for doubting being in the bladder.

In the evening, having passed no water, Mr.

WATSON again introduced the catheter, blood following as before. It must be observed, though no urine followed, every bleeding afforded him a great deal of ease.

On the following day (the third of the retention), the Doctor ordered saline and purging glysters, for he complained of great uneasiness, as he supposed for want of an evacuation. In the evening no stool having occurred, a large glyster was thrown up, by way of fomentation, as he complained of great uneasiness, and distention of belly. Eight spoonfuls of castor oil failed to operate, though a medicine he was used to, and which never before failed to relieve him. A purging mixture had no better success. Mr. HAWKINS now visited him, and passed the catheter with the same doubts that had attended before. Again put into the warm bath, he passed about an ounce of urine, tinged with blood.

On the fourth day, the belly, greatly inflated, he passed a trifling quantity of water, his great complaint was the want of a stool, which he was quite persuaded would remove all his distress. He was repeatedly immersed in the warm bath, but no action of the bowels could be obtained. Towards evening his pulse suddenly declined, and early the following morning he died. The bladder was never distinctly felt above the pubes, nor was there the violent tenderness and pain of over-distended bladder, nor the quick hard pulse of inflammation.

The colon and cæcum, greatly distended with air, with the injected fluids, formed the whole tumor of the abdomen. The bladder just appeared above the pubes, and was somewhat thickened. It was opened at the fundus, and a pint and a half of urine discharged. A calculus, the size of a hazel nut, lying loose in the cavity, was also taken out. About an ounce of grumous blood was found at the neck of the bladder. The inside of the bladder had, towards its lower back part, somewhat of an inflammatory appearance.

The prostate gland was very much enlarged forward, and of a globular figure. Cutting it through on the fore part, there appeared on the right side of the caput gallinaginis, a lacerated wound in the substance of the gland. The lacerated flap of this wound, when the two sides of the gland were brought together, applied itself so exactly to the orifice of the urethra, that any instrument introduced into the urethra, would necessarily pass into the wounded substance of the prostate gland, and not into the bladder. *

CASE 58.

Retention, from Diseased Prostate Gland wounded by the Catheter.

THE Rev. Mr. D., 72, had retention of urine. Bleeding, warm bath, glysters, purges, opiates, and fomentations, had all been tried without success. A gentleman in attendance had passed the catheter, as he thought, into the bladder; but only blood followed. Mr. WATSON was then sent for, to pass it, but found the urethra so very irritable, that he could only bear it passed two inches, although introduced in the most tender and deliberate manner. Fomentations, &c., were again directed, but thus he continued. It was proposed to puncture the bladder by the rectum, but the prostate gland was found too large to admit of the operation. However, some water occasionally made its escape, and sometimes, assisted by external pressure, flowed rather freely. He was attacked with putrid sore throat, with rambling and delirium; for which the bark was given in mutton broth, and by glyster. The fever, notwithstanding, increased, and he died on the twelfth day.

The bladder, greatly distended, was on the left side blackish, as if bruised, or like an extravasation

* From a MS. of Mr. WATSON'S; in Mr. HEAVISIDE'S Museum.

of blood; verging towards gangrene. The prostate gland prodigiously enlarged, protruded within the bladder. Several small stones appeared to be lodged either in the fat or blood-vessels, about the neck of the bladder and prostate. Just above the caput gallinaginis, the membrane of the urethra had been lacerated, a passage having been forced through it for some extent, into the prostate gland. *

CASE 59.

Retention, from Enlarged Prostate, relieved by Puncturing the Bladder.

A GENTLEMAN in the 68th year of his age, requested Mr. HEAVISIDE to visit him, *Dec. 23. 1819*, for a retention of urine. Having passed no water for near forty-eight hours, the bladder was very painfully loaded, reaching up to the navel. All attempts were unavailing, to introduce any kind of instrument by the urethra. The prostate gland was so enlarged, as even to render the puncture of the bladder by the rectum impracticable; Mr. HEAVISIDE therefore determined to make an opening into it, above the pubes. For this purpose an incision was carried through the integuments, and at one point (an inch above the symphysis pubis) through the linea alba. A trocar was then passed through the coats, into the cavity of the bladder. Three pints of a most offensive chocolate-coloured urine drawn off, part of a flexible gum catheter was passed in through the canula, which was then removed; the elastic catheter being secured from slipping out, and fitted with a plug, to prevent the wetting of the bed.

The urine poured off, exhibited small shreds of coagulable lymph floating in it, but no distinct se-

* From a MS. of Mr. WATSON's, in the Museum of Mr. HEAVISIDE.

diment, except a quantity of dark-coloured powder, like putrid blood. Towards the evening the pulse was firm and regular, 84; and he had enjoyed some refreshing sleep.

The operation performed at six in the afternoon, at twelve at night the plug was taken out, and a pint and a half of high-coloured, but healthy looking urine drawn off.

December 24. At six this morning, a pint of pale but healthy urine was drawn off.

December 27. The piece of elastic catheter, cut to a convenient length for being kept in the wound, had been secured by tying tight round it a strong waxed ligature, the ends of which were attached to a bandage, passed round the body. In proceeding to draw off the water this morning, the bandage having moved a little, the end of the elastic catheter was found to have slipped out of sight. This accident appeared to have arisen from the projecting end of the plug catching in the bedclothes, by which the catheter was pushed entirely into the bladder. Keeping the plug quiet, as a director for the end of the tube, and better able to depend on the ligature that was tied round the catheter, I held the former steady, while the latter was gently withdrawn in the direction of the wound; by this means, the tube was safely recovered, whereas had the plug been pulled, it might have come out, and the canula would then, probably, not have been recovered without a painful enlargement of the wound. A small circular plate was then fixed to the instrument, so as to prevent the possibility of a recurrence of this accident.

January 4. 1820. A few evenings back, several unavailing attempts were made to introduce an instrument by the urethra, into the bladder. Elastic and metallic catheters were tried, but to no purpose. The urine, now darker than before, and depositing an opaque yellowish mucus, still passed freely by the wound; but the expulsion of the last

drops was now productive of painful spasms near the glans penis. Tongue furred, with a blackish streak along its centre; pulse 72; appetite pretty good.

Jan. 7. The urine on one occasion, of a florid bloody hue, most frequently was slightly tinged with blood, and much mucus. As it was thought that the piece of elastic catheter might, perhaps, have caused irritation, it was carefully and lightly withdrawn; in accomplishing its removal, I perceived a momentary difficulty, and a sensation as if something held it. This, however, immediately gave way; it now came quietly out, and the last inch of the tube was found partially imbedded in a yellowish and very adhesive matter, looking somewhat like mucus in its appearance, but so partially soluble in warm water, as more nearly to resemble coagulable lymph. This scraped away, a partial deposit of the phosphates was found upon the clean surface of the elastic gum. It is curious, that while the catheter was gently moved from its position in the bladder, the patient (who did not know what was doing,) said he felt a sense of heat in the neck of the bladder, and a prickling sensation in the orifice of the urethra, and enquired if I was not pouring in hot water. I have no doubt that in this instance adhesion, through the medium of effused lymph, had already taken place between the end of the catheter and the surface of the bladder, and had the instrument remained longer, it might have proved a source of greater inconvenience.

Jan. 11. For several days, the spasmodic pains, like pins and needles, near the end of the penis, had been very troublesome.

Jan. 15. A fresh catheter was placed in the wound.

Jan. 18. On this day, with considerable difficulty, a flexible metallic catheter was introduced through the urethra into the bladder, and there

allowed to remain. The tube was immediately removed from the healthy granulating wound above the pubes, with a view to its healing.

March 4. The metallic catheter was withdrawn, and one of elastic gum, upon a stilet, introduced in its stead. The following evening, the catheter slipped out; and during the night, feeling a desire, he, with some difficulty, passed, for the first time, near a pint of urine, by the natural efforts, without any having escaped by the wound. The catheter, however, was next morning replaced, as he could not yet exactly depend on his power of relieving himself without it.

March 15. The wound on the abdomen, dressed with lint only, was now perfectly healed. The catheter having slipped out of the bladder, was laid aside; and the whole of this day he found he could pass his water in an easy pleasant stream, at any interval he pleased. To day he voided his urine first, and then had a catheter passed, when only three ounces of water were found to have remained behind, upon which he was advised to lay aside entirely the use of the instruments. This gentleman has since recovered his strength so completely, as to enjoy better health than he had known for many years past.

Feb. 1823. This gentleman had experienced no tendency to a return of his complaints.

CASE 60.

Retention, from Enlarged Prostate.

J. L., a man aged 73, observed a degree of frequency in passing his water, in *May 1816*. He soon afterward complained of being, occasionally, unable to pass it at all, even when he had left his bed for that purpose, until he had walked a little about the room.

April 23. 1817. He could pass no urine, though distressed with frequent desire and straining. On

the 25th, he desired a medical gentleman to see him, who ordered the warm bath. He had still urgent desire, but passed nothing. On the 26th, I was requested to visit him, and introducing a large catheter with perfect ease, drew off more than two quarts of water. The prostate gland, examined by the rectum, was found considerably enlarged. From this time I continued to draw off the urine regularly, till the 22d of *May*, when he recovered the power of expulsion. The water generally exhaled a strong ammoniacal odour, was of brownish colour, without mucus, but sometimes depositing dark-red particles of gravel.

August 17. He called, and said he had some returning difficulty in getting rid of his water, generally worse towards evening, and better on the approach of morning. Some leeches were directed to the perineum.

Oct. 20. He sent in great distress, not having passed any water for two days. I drew off two pints, and the retention left him.

Jan. 28. 1818. He sent to beg me to see him as soon as possible, having passed no water for the last thirty-six hours. I now drew off three and a half pints; after which, the bladder recovered its power. It appeared, that the last attack had been the consequence of some degree of intemperance.

Jan. 1. 1819. For several days, the retention had returned. I again examined by the rectum, and found the prostate as large as the half of a middling sized apple, so that the finger could scarcely compass its convexity, or distinctly reach the bladder above it.

Sept. 3. From severe cold, the retention returned, and had existed twenty-four hours when I visited him. The silver catheter found some obstruction from spasm at the bulb of the urethra, but with some little pressure passed on to the prostate, and here a finger, behind the scrotum, easily raised the point over the projecting part of the gland, and it

readily slipped into the bladder. The water drawn off for two days, he again recovered the power of voiding it by the natural efforts.

Jan. 26. 1820. Had a return of retention, which resisted the introduction of the catheter with more than usual obstinacy, the prostate gland feeling of a cartilaginous firmness. By keeping the instrument in the bladder for a few days, he recovered. In *June* and *September* following, I was again obliged to relieve his full bladder, after which the power of expulsion returned.

Nov. 1822. He continued in good health; although occasionally obliged, for a day or two, to have recourse to the catheter.

CASE 61.

Retention, from Enlarged Prostate Gland.

IN *March 1818*, Mr. HEAVISIDE was requested to visit a gentleman, aged 69, who, while under the care of Dr. HOOPER for another complaint, had retention of urine. Mr. HEAVISIDE found there was also an immense scrotal rupture on the right side, reaching down very nearly to the knees; and examining by the rectum, ascertained a very enlarged prostate gland. The urethra, by the weight and magnitude of the hernia, was so dragged out of its proper course, that an elastic gum catheter, passed with great difficulty beyond two acute angles of the canal, was stopped by a third obstruction, which could not be overcome, apparently in the prostatal part of the urethra. Upon this account, the patient was requested to see another surgeon in consultation; who, after Mr. HEAVISIDE had again endeavoured, in vain, to introduce a catheter, made several unsuccessful attempts, but at last, with a large silver catheter, forced his way, and with extreme distress to the patient, the water was drawn off.

Much local pain, fever, and tenderness about the lower part of the abdomen, followed the oper-

ation, for which symptoms, he was, for some time, attended by Dr. HOOPER. The retaining an elastic gum catheter in the bladder, and occasionally changing it, constituted nearly the whole of his surgical treatment; for although it might be supposed that his rupture ought to be supported by some sort of bandage, and attempts of this sort were repeatedly made, he could never bear them, for if the hernial tumor was raised only three inches, it invariably produced a pain in the bladder, only relieved by letting it down again.

Feb. 1822. The general health began to decline, the appetite gave way, while nausea, and sometimes vomiting, came on. The bowels acted regularly, but medicines failed in removing the irritable state of the stomach, which, at length, rejected every thing that was taken; he now sunk more rapidly, and on *April* 8. died.

I was desired to examine the body; which, with the contained viscera, was excessively loaded with fat. The pyloric end of the stomach was drawn downward by the omentum, which descended at once by the spacious opening at the groin into the hernial sac. Into the same cavity, the whole of the colon had passed down, and was closely adherent to the parietes of the bag; the very adhesions having become as much loaded with fat, as the omentum or mesentery. The abdomen contained some, but the sac most, fluid; in the whole, about twelve pints of serum. Some few adventitious bands, from effusion of lymph, were found in the lower part of the abdomen. These bands were probably the result of the peritoneal inflammation, that followed the first introduction of the catheter; and one of them, attached to the fundus of the urinary bladder, and to the intestinal canal near the rupture, explained the cause of the uneasiness felt whenever the hernia was supported.

The urinary bladder, prostate gland, and urethra removed, the inner membrane of the urethra,

laid open, was highly vascular and irritable. The bulbous portion of the urethra, owing to a strong preternatural band of ligamentous fibres attached to the left side of the ossa pubis, and passing thence to spread itself over the bag to assist in its support, was pulled downwards, and drawn entirely out of its natural course. Opposite the part where this band lay against the canal, the inner membrane of the urethra was upon the left side ulcerated, to the extent of an inch. The appearance of the ulcer was that of a greyish-coloured, purulent, sloughy, cellular membrane, with a very vascular margin. Between this spot and the external opening, upon the right side of the urethra, was a second ulcer, less extensive, but otherwise similar to the first.

The prostate gland was exceedingly enlarged. In the posterior part of the prostatal portion of the urethra was a ragged opening, passing through the substance of the gland, for the extent of an inch; by this opening a large-sized bougie freely entered, and as freely passed out, through a second opening, through the projecting part of the gland, into the cavity of the bladder. The mucous membrane near these openings was extremely vascular and irritable. From the great difficulty experienced, and the violence that had been employed in the first introduction of the catheter, it is pretty clear the instrument was then forced through the substance of the enlarged gland; for that operation was attended with such excruciating pain that he roared and stamped furiously, and bled so freely by the urethra and through the catheter, that although it was presumed a quart of urine was drawn off, it was not easy to determine what proportion of it was blood.

The ulcers in the urethra appeared to be the result of the irritation and friction incident to the frequent removal of the catheters, an operation that always excited extreme pain; and as this distress was of course regulated by the degree of change the instrument had undergone by lying in the

urethra, it became a peculiar care to withdraw the catheter sufficiently early. There was considerable difficulty in determining this point correctly. The progress of this case, however, afforded Mr. HEAVISIDE a favourable opportunity for ascertaining the comparative value of elastic gum catheters, of common, and those of superior manufacture, applied in the same case, and under the same circumstances. The maker first employed was frequently told that the outside of the catheters became rough, and were therefore productive of extreme pain in two or three days, and sometimes in less time, the smooth surface being either raised into innumerable sharp points, or into small blisters. At length, long determined to try some other catheters, a person was recommended as an excellent instrument-maker, (Mr. WEISS, of the Strand,) of whom some elastic catheters were procured, and these after the first trial were constantly preferred. Mr. HEAVISIDE observed that the former catheters he had been sometimes obliged to remove within eight hours after they had been passed new, and they were even then found more rough and spoiled than those of the latter kind, after ten days' residence in the bladder; at which time withdrawn, they were sometimes perfectly unaltered, and being laid aside and allowed to dry, were again passed, and kept in twelve, or even thirteen days more. One exactly under these circumstances I examined; it was smooth and polished as if new, though on slitting it up, its cavity was covered with a coat of mucous and sabulous matter, proving its having been much used.

CASE 62.

Retention, from Enlarged Prostate, relieved by Puncture of the Bladder.

July 20. 1820, I was sent for to Chelsea, to see a person who had passed no water for forty-eight hours. I found the patient a very robust corpulent

man, 82 years old. He could give no very distinct account of himself. Examined by the rectum, the prostate gland was felt much enlarged, so much so, that with the subject being fat, it was not possible to compass it with the finger, so as to ascertain the state of the bladder by the bowel. I was informed that on the preceding day four or five attempts had been made to pass a silver catheter, but without success. The result of the attempts I made myself were equally unsatisfactory, although I tried catheters of elastic gum, and of silver variously curved. There was no difficulty in reaching the prostate, and I once got a silver catheter to pass one inch and a half along the passage beyond, and at the moment perfectly believed into the bladder, but it was not so; and this left me in some uncertainty whether the attempts made on the preceding day, as bleeding occurred, might not have formed some false passage either by the side, or into the substance of the prostate gland.

The full bladder being distinctly felt above the pubes, I felt it necessary to pay him a second visit in the afternoon, when I determined on the necessity for puncturing the bladder; and as the prostate gland prevented its being felt from the rectum, the operation was performed above the pubes.

I first exposed the linea alba, by a free longitudinal incision through the skin and fat, the termination of the line being nearly as low as the pubes, but not quite, that there might be a little thickness of adipose membrane left, to admit of any accidental sloughing without injury to the symphysis. The fibres of the linea alba for some small extent, half an inch above the pubes, were then carefully divided with the scalpel, until both by the eye and finger the softer muscular structure of the coats of the bladder was brought fairly into view. It was now manifestly evident the bladder was full; a trocar was therefore cautiously passed into its cavity, and the stilet being withdrawn, the urine

rushed forth. From the considerable depth of the opening, much of the water was lost, flowing over into the bed; two pints only were saved, of a clear, limpid, and healthy urine. An elastic gum catheter, at the close of the operation was introduced into the bladder, the canula of the trocar being withdrawn over it.

July 21. The patient much recovered, now stated that on the first day the retention was extremely painful, but that on the second and third he felt no pain either before, in, or after the operation. The catheter remaining in its place, the urine passed freely and without pain.

From this time the canula of elastic gum, cut to a convenient length, and secured from the possibility of slipping entirely into the bladder, was kept in, and only occasionally changed. He was one day desired to be careful not to let the canula slip out, and from that time gradually got into a habit, which no persuasion could afterwards break him of, of frequently pushing in the instrument as far as it would go. The operation had succeeded most happily, and for the first week his health improved, a single film of slough only forming upon the exposed surface of the adipose membrane; but having been some years confined to his bed by the infirmities of old age, he was totally helpless, and it was not possible to keep him constantly dry. Inflammation and sloughing took place upon the hips; and notwithstanding every assistance from bark, wine, porter, and the best diet, &c. he declined, sunk, and died on the 20th of *August*.

On opening the body, I found the bladder much contracted, the inner membrane having at first somewhat the appearance of a congeries of enlarged varicose veins, but it did not appear to have suffered from any extended inflammation. The part of the prostate gland which projected into the bladder, forming the middle lobe, had become a slough, and was reduced to a tough, yellowish-green, pulpy

mass. The inner membrane, immediately encircling the basis or margin of the mortified portion of the prostate gland, was of a bright scarlet colour, demonstrating the effort made to establish a separation between the dead and the living parts.

The body of the prostate gland very considerably enlarged, contained several small encysted calculi. The prostatal part of the urethra and caput gallinaginis, were highly vascular and irritable.

The difficulty experienced in attempting to pass the catheter, appeared to have arisen from a deep depression found towards the right side of the canal within the substance of the prostate gland. The state of slough to which the middle lobe was reduced, appeared to me after a careful consideration of the position and length of the canula, replaced in the bladder, to have been partly at least brought on by the habit he had got into of incessantly pushing in the tube, which kept up local disturbance by fretting the irritable surface of the membrane covering the gland.

SECT. XVIII.

On Retention, from Spasmodic Stricture in the Urethra.

561. THE urethra is that canal which opens outwardly from the urinary bladder, at the extremity of the penis.

562. By dissection we learn that the urethra is made up of several different structures, all of which possess a certain measure of elasticity. It has been already observed that the inner membrane of the urethra is continuous with that lining the cavity of the bladder, and that it forms an extensive secreting surface.

563. The canal of the urethra is surrounded by a cellular or spongy structure for the greater part of its extent, which cellular structure becomes turgid with blood, together with the cavernous bodies of the penis, while the parts are under the influence of the venereal excitement.

564. External to its spongy structure, the urethra receives a partial support from certain muscles of considerable power, subservient to the purpose of generation, as well as from several ligamentous expansions by which it is more immediately connected to the symphysis pubis.

565. Laying open the cavity of the urethra, we see that its internal appearance varies, conformably to the particular office assigned to each part. At the neck of the bladder it is of a pale yellow colour, and it has much the same appearance where it passes through the prostate gland, and receives the seminal ducts. Just beyond this, at the membranous portion, the canal becomes smaller, and from being more freely supplied with blood, assumes a dark-red colour. Immediately before the membranous part, the canal for the space of two inches becomes more relaxed and capacious, and the inner membrane still more vascular, forming the bulb of the urethra. Anterior to the bulb the diameter and vascularity are again reduced, so that the colour of the inner membrane is comparatively pale.

566. These appearances in the healthy urethra correspond to the functions allotted to the different parts of the canal. We know that as a general rule, the sensibility and irritability of parts bear a certain relation to their vascularity; and upon this principle there would be no difficulty in determining, from the appearance of the parts, that the most irritable points in the urethra must be the bulbous and membranous portions, and that the only part sparingly furnished with irritability, and therefore not provided for occasional excitement and action, is that portion which passes through the prostate gland.

567. Upon the internal surface of the urethra numerous small openings may be observed, into each of which a common bristle may be passed obliquely backward, for about one-eighth of an inch. These are the orifices of the lacunæ. They fur-

nish a certain proportion of the mucous matter by which the surface of the canal is kept moist, exhibiting one of the simplest forms of glandular structure; and like other glandular parts are liable to inflammation; in which case they suffer enlargement, secrete purulent matter, or become the seat of abscess.

568. The most complicated function in which the urethra is concerned is that which it performs, in concert with the parts immediately surrounding it, in the expulsion of the semen. During the excitement immediately preceding this act, the seminal fluid is accumulated in the bulbous part of the urethra preparatory to emission, and upon the accession of spasm the membranous part that leads back into the bladder is so closely contracted as to be completely shut up, while the bulbous portion of the canal, together with the stronger muscles surrounding it, contracting with force, the contents of the urethra are driven forward with considerable impetus, the action of the muscular fibres of the canal coming forward with its contents, even to the orifice of the urethra.*

* The almost infinite variety that may be observed in the resources of Nature, is well calculated to excite admiration. The spasm by which the membranous part of the urethra is closed, in the venereal act, is obviously appointed to prevent the dispersion of the seminal fluid. The same end is answered by a more ingenious and simple contrivance in some of the lower orders of the mammalia. For example, in the male porpoise, which I have dissected, the bladder communicates freely with the urethra, but the seminal ducts open upon the centre of a soft, spongy, vascular papilla, that projects forward into the urethra, as the os uteri does into the vagina. Over the surface of this papilla, while flaccid, a probe may be readily passed through the semilunar opening into the bladder; but just at this part the urethra is found encircled with a strong thread of ligamentous fibres, so that when preparatory to the coitus, the parts are turgid with blood, this spongy vascular papilla swelling up, becomes so tightly girt by the ligamentous circle round its neck, as to effectually close the passage into the bladder, and prevent the possibility of the dispersion of the fluid collected in the urethra. These facts have, however, passed unnoticed

569. These are the appearances and actions of health; but it is under circumstances of disease that the strongest evidence is afforded, that the urethra is possessed of a muscular power. Indeed the fact may, in my opinion, be proved in almost any instance by introducing a bougie of moderate size into the healthy urethra, and lightly supporting the end that projects from the penis in a horizontal position. If the action of the urethra is then observed with attention, it will be found that the power which expels the instrument, in other words the contraction of the urethra, is nearly uniform through its whole extent. The point of the bougie is not pushed forward more quickly while moving through the bulb, where the canal is surrounded by strong muscles, than afterward; on the contrary, its motion is exceedingly slow and uniform, until the whole of the instrument at length expelled, the point fairly drops from the orifice of the urethra.

570. This may be said to shew the elasticity of the inner membrane, and perhaps had the bougie been passed only to the extent of half an inch into the urethra, its expulsion upon this principle might be admitted; but when the instrument has been introduced several inches, the advocates for elasticity forget that while the membrane of the urethra is exerting itself for one-eighth of an inch to push along the end of the bougie, the same power is operating against it to the superior extent of several inches, and that the considerable friction from so extensive a surface of contact does away the probability of

in a paper upon the Anatomy of the Porpoise, by Dr. TYSON, in the Phil. Trans for the year 1681; neither is there any allusion to them in the excellent paper of Mr. HUNTER, on the Economy of Whales, Phil. Trans. 1787. A provision in some respects similar to the above is found in the urethra of the tortoise, as demonstrated in a work produced in a style of unusual splendour and accuracy, upon the Anatomy of the European Tortoise, recently published by Professor BOJANUS, of Vilna.

elasticity having any thing to do in the actual expulsion of the instrument.

571. It has been generally considered that the urethra is not only muscular, but that its canal, like other muscular tubes, is in particular cases subject to partial contraction or spasm, and that this spasm constitutes one kind of stricture in the urethra ; and really the evidence which every day's experience affords upon this point is so clear, that it seems unreasonable to affirm the urethra has no muscular power, and that consequently spasm has nothing to do in its diseases ; particularly as comparative anatomy demonstrably proves that in the larger animals, especially the horse, where structure is more readily developed, and where the functions of the urethra are precisely the same as in the human subject, the muscular fibres encircling the urethra cannot be overlooked.

572. As the urethra is a membranous canal, surrounded by muscular fibres, its being occasionally subject to an excessive degree of contraction at any particular point, is only a quality it possesses in common with all other muscular structures under similar circumstances.

573. Where from any cause the contraction of the muscular fibres of the urethra is partial, and to a certain extent permanent, it produces a hindrance to the free flow of urine ; generally exciting attention, and in this state termed a spasmodic stricture.

574. The affection in this stage of its progress, is very properly considered spasmodic, as the term refers merely to an excessive action of muscular fibres, not to any change in the organization of the parts. There are also many proofs, that this view of the nature and cause of stricture is well founded. In the first place, the causes by which the contraction in the urethra may be brought on, are those capable of inducing irritation in other muscular parts ; secondly, the sudden manner in which the effect may follow the cause, affords a strong

argument that the stricture must be pure spasm; and lastly, it is proved, by the immediate relief afforded by certain medicines, which it is well known, can operate only by removing spasm, as well as by the appearances that are sometimes found after death. (Cases 72. and 73.)

575. This species of contraction has been described by Mr. HUNTER as generally affecting only a very small extent of the canal, producing an appearance in the urethra, as if it had been surrounded by a packthread.

576. While the stricture remains in this state, it is liable to occasional contraction and relaxation, from the influence of apparently trifling circumstances. It necessarily becomes the most irritable part of the canal, and any change in diet, excess in wine, exercise, or fatigue, may aggravate the degree of spasm, excite inflammation, and bring on complete retention of urine; the usual consequence of which is, that the stricture at first mere spasm, becomes converted by degrees, into a permanent contraction of the part, from change in structure, incident to repeated inflammation.

577. As stricture in the urethra is almost always in the first instance the effect of irritation, it is natural to infer, that the tendency of the contraction will be dependent on the circumstances producing it. Where the stricture has been brought on by sympathy with some surrounding part, as in affections of rectum, bladder, or prostate gland, the complaint will be at first spasmodic, and very likely to remain so; where, on the other hand, an irritating cause of considerable power has been at once brought into immediate contact with the inner membrane of the urethra, as in using astringent injections for gonorrhœa, or from calculus arrested in its passage through the urethra, exciting extreme pain and violent inflammation, it generally happens that effusion of coagulable lymph takes place into the surrounding cellular texture, thus laying the

foundation for the most obstinate and extensive kind of stricture.

578. The irritation of stone in the bladder generally operates sooner or later, as an exciting cause of stricture; and where the contraction is obviously spasm, and is readily overcome, so as to admit of the calculus being distinctly felt in the bladder, the affection in the urethra may very safely be considered as the consequence of the irritable state of bladder.

579. Where sympathetic spasm in the urethra, productive of retention, is induced by affection of rectum, the characters of the complaint are in some respects peculiar; and while on the one hand, they may occasionally require management, on the other, they appear very well disposed, provided they are treated with the necessary degree of temper and gentleness. (Cases 70. and 71.)

580. It has long been a contested point in surgery, whether injections thrown into the urethra have the power of producing stricture. In many cases, it is certainly not possible to prove clearly, that they have done so; but in some instances, I have known them, through the medium of inflammation, not only to leave strictures, but those of the worst and most obstinate kind that could possibly be, which were never afterward removed, and scarcely admitted of any material relief.

581. In these instances however, the seat of the affection having been the anterior or external part of the canal, and this not being the most usual situation of stricture, originating in spasm, it might still admit of doubt, whether the irritation from an injection applied to the one extremity of the urethra, is capable of producing spasmodic stricture at the other. As far as my experience has enabled me to judge, I am clearly of opinion that stricture is, in many instances, derived from this cause alone.

582. In one case particularly, a patient with gonorrhœa had been directed to use an injection

of so moderate a strength, that it did not materially lessen the quantity of discharge, and was not the means of exciting any increase of inflammation; but it nevertheless brought on a retention of urine, for which I was consulted, and on passing a bougie, a spasmodic contraction was found in the most usual seat of stricture, the membranous part of the urethra. This affection, however, was readily relieved by the warm bath, and opiates.

583. In this case, we see that an irritation comparatively slight, was answered by a correspondent temporary contraction at the part sympathizing with the seat of the original impression. But in several other instances, and in two particularly (Cases 80. and 88.), the use of astringent injections that were sufficiently powerful to excite violent inflammation in the anterior part of the urethra, were also productive of permanent stricture at the membranous portion of the canal, in connection with irritable bladder.

584. Any external violence may operate as an accidental cause of stricture in the urethra, by producing either irritation, inflammation, ulceration, or perhaps sloughing in some part of the canal. (Cases 48. and 50.) The application of blisters have now and then produced spasmodic stricture; although the excitement from this cause, being of a temporary nature, the inconveniences to which it may have given rise, do not often prove tedious.

585. It has been already demonstrated, that the most irritable parts of the urethra, are the membranous and bulbous portions. (565.) It has been also pointed out, that in the first of these two situations, there is a provision for an occasional spasmodic action of the muscular fibres of the urethra, as a circumstance essential to the complete effect of the most important function these parts have to perform. (568.) This, therefore, is found to be naturally the most contracted part of the urethra, and most frequent seat of stricture. Next to the

membranous part, the bulb is subject to contraction, although the same change occasionally takes place in the other parts, between the bulbous portion, and the external orifice.

586. Stricture in the urethra is a disease which in its commencement is very rarely, if ever observed. Its early progress is very imperceptible, because not often productive of symptoms. It is natural to suppose that even in its beginning, as stricture consists in a contraction of the canal, the stream of urine must of necessity be lessened; but the same circumstance may occasionally arise from such various and trivial causes, that this symptom alone is scarcely ever regarded by the patient.

587. The appearance of the stream of urine may, however, have a striking peculiarity, in assuming a spiral or twisted form; and in the more advanced stages, it is not uncommonly divided into two smaller jets; and these circumstances will not only be found to vary in different cases, but in the same case at different times, according to circumstances, the state of constitution influencing the contraction of the stricture.

588. In the progress of the affection, there is occasional pain, in or about the contracted part of the urethra, attended with some degree of frequency in making water, circumstances very apt to be reproduced, or increased, by irregularity in diet or exercise.

589. As these attacks continue to return, it is at last observed, that the stream of water is certainly much smaller than natural; and as this remark is generally made at a time when more or less uneasiness is felt at the neck of the bladder, perhaps with frequency and straining in voiding urine, the patient consults his surgeon, who, on passing a bougie, ascertains the stricture.

590. The habit of frequent intercourse with women generally exerts an unfavourable influence upon the early stages of stricture. This arises from

the temporary state of violent spasm thus induced, having a natural tendency to increase any degree of contraction previously existing. The same unfavourable influence has now and then been found to arise in cases of spasmodic stricture, merely from being in company with women; a remark I believe to be more particularly applicable to some other affections of the urethra. A young gentleman whom I had attended for gonorrhœa, had got entirely rid of all the symptoms, and thought he might again venture into company. His first visit was to the pit of the Opera House, on a moderately cool evening. The next morning he sent for me, told me where he had been, said the ballet had greatly interested him, but to his great surprise, he found the discharge had returned, and was just as bad as ever; and in spite of the usual means, it continued for more than three months.

591. Where a spasmodic stricture in the membranous part of the urethra, from injecting for gonorrhœa, has brought on complete retention of urine, and the catheter, at first passing with ease, is after a time so powerfully resisted, as not to admit of being introduced at all without absolute violence and injury to the parts, the vigorous application of medical treatment may sometimes supersede any further necessity for surgical assistance. The spasm which by no art could be made to yield to an instrument, shall be made progressively and effectually to relax, by judiciously and progressively lowering down and relaxing the tone of the whole constitution, to a point that is inconsistent with the maintenance of local spasm. (Case 69.)

592. The irritable state of stricture consequent to the spasm that occurs in the venereal act, is not confined to the mere increase of contraction; it frequently excites sympathetic uneasiness at the external orifice, with increased secretion from the membrane lining that part of the urethra; and from the manner and circumstances under which

this occurrence usually takes place, it is liable to be mistaken for gonorrhœa.

593. Moderate attention, however, will enable the practitioner to distinguish the two cases. The accession of the discharge is more sudden, the inflammatory symptoms with which it may be attended infinitely more moderate, than in gonorrhœa; indeed, the nature of the attack is such, that if let entirely alone, it in general subsides spontaneously in a week or two.

594. As the disease advances the contraction increases, the strictured part becoming so much smaller than natural, that the bladder is constantly called upon to make preternatural exertion to get rid of its contents; and the straining, formerly an occasional symptom in voiding urine, becomes a more frequent source of inconvenience, and eventually never entirely leaves the patient.

595. The irritation from stricture is occasionally productive of various symptoms, dependent on constitution and other circumstances. Not unfrequently it is the means of exciting the natural action of the parts at improper seasons, inducing nocturnal emissions. This symptom most commonly occurs in unison with other incidents that serve to clear up the nature of the case, but is occasionally the first motive to attention to the complaint.

596. In the further progress of the disease, the urinary bladder, constantly disturbed in the performance of its functions, becomes subject to increased irritability from the most trivial causes; the slightest cold will, on this principle, produce distress, exciting material increase in pain, and frequency of passing the urine, which is voided thick, turbid, and in small quantities.

597. Where the disease still continues to advance, the attacks of irritation come on more frequently, and prove more severe and harassing; in this stage of the complaint also it not unfre-

quently happens that the irritable state of bladder operates as a cause of aggravation to the stricture, which becomes so much narrower, as to render the urethra nearly, or entirely, impervious.

598. When the disease has reached this point, it becomes essential that the urine should find some other means of escape from the bladder; a provision that must be made either by the efforts of nature, or the exertions of art.

599. The treatment of stricture in the urethra is directed upon one of two principles, being intended either to remove the obstruction by relaxing the contracted part of the canal, without doing the least violence to the parts; or, if this fails, it professes to restore the passage through the urethra, partly by destroying the tendency to contraction, and partly by dilating that contraction.

600. The first of these methods of treatment is applicable to the relief of spasmodic strictures, and is occasionally assisted by the exhibition of opiate or other antispasmodic medicines, although, in a surgical point of view, the principal means is the use of the bougie; the second mode is generally directed to the removal of permanent stricture, and is also most frequently accomplished by the regular use of bougies, or other such instruments, assisted occasionally by the application of caustic.

601. In these complaints, however, as in most others, we are frequently taught that the success of all our efforts at local amendment must depend, after all, upon the improving or declining state of the general health; this last condition being ever subject to the habits of the patient. Derangement in the functions of the chylopoetic viscera will produce its influence, and where retention from spasm has arisen from intemperance, the relief of the complaint will depend more immediately upon clearing out the stomach and bowels, than upon any local treatment. (Case 65.)

602. In the early stages of stricture, when the

contracted part of the canal is not very irritable, the bougie, under proper management, is frequently the best instrument, and only local means necessary for removing the complaint.

603. Where this instrument is carefully adapted to the tone and degree of contraction of the stricture, the size of the bougie being increased as rapidly as the temper of the parts will admit, the affection may, in many cases, be removed without the intervention of any untoward circumstance, or the necessity for having recourse to any other assistance.

604. It frequently however, happens, that when this plan has succeeded, and long after the bougie is laid aside, the tendency to contraction returns upon the parts, the patient finds his former symptoms recur, and it becomes indispensable to again have recourse to treatment. We see, then, that the bougie, though capable of overcoming the effect — which is the contraction, does not always permanently remove the cause — the disposition to spasm ; but notwithstanding this, the bougie is still the most appropriate means we know of, and is indeed all that is advisable, while moderate irritability in the urethra admits of its being applied as often as necessary.

605. Unfortunately, a stricture that was formerly very readily relieved by the bougie, may become again troublesome, and prove much less manageable than it was at first. The strictured part of the urethra may have acquired so great an increase of irritability, that the introduction of a bougie is attended with extreme pain ; its being retained against the stricture is productive of very great distress, and if under these circumstances it is allowed to remain long in the urethra, but more particularly if the surgeon ventures to pass a bougie a size larger than ordinary, the irritation is so aggravated as either to excite spasm at the neck of the bladder and retention of urine, or

endanger inflammation and abscess in the perineum, inflammation of testicle, or some other ill consequence.

606. I have met with one instance of this kind of stricture, in connection with an extremely rare disease, an enlargement of one of the vesiculæ seminalis, apparently scrofulous; and, from the course of the symptoms, I had reason to believe that it was this particular disease which led to the unusually obstinate retentions of urine, from spasmodic stricture, together with the severe consequences rarely met with, even in permanent stricture. The appearances were exactly those described in the admirable work on Morbid Anatomy, by Dr. BAILLIE; who observes, that he had only seen one example of the disease. (Case 73.)

607. The treatment of this irritable state of stricture will require much judgment; for although the degree of permanent contraction may be so trifling, that were the irritation and disposition to spasm relieved, the urethra might be with ease brought back to its naturally relaxed condition, by the bougie; yet while the irritation remains upon the parts, it will sometimes be difficult to determine what had better be done, for if let alone the stricture is sure to increase, and if meddled with in order to its being relieved by the bougie, the attempt may only aggravate all the symptoms.

CASE 63.

Retention of Urine, from Spasmodic Stricture.

A CORPORAL, in the 82d foot, aged 27, had for some weeks observed the stream of urine was smaller than usual; when on *Sunday* morning, *August 28. 1808*, he paraded for church. He felt desire to pass urine as the regiment went in, but did not like to fall out of the ranks. Waiting till service was over, he found he could not pass a drop. The effort,

attended with much pain, was followed by violent straining, and a few drops of blood. The desire returned frequently, every attempt being extremely painful, and attended with bearing down. Out of bed eleven times the following night, he could pass no water. On the *Tuesday* he attended at the hospital, I passed a bougie of moderate size, when a yielding obstruction, which gave pain as the instrument passed through it, was found at six inches. It was overcome by a pressure equal to an ounce weight. Much pain was felt in the seat of the contraction, for the minute the bougie was allowed to remain in the urethra.

On withdrawing the instrument, desired to pass his urine he made the attempt, and got rid of a table-spoonful, in a very contracted stream; the close of the act was productive of straining, and a few drops of blood.

During his return from the hospital to the barracks, up a steep hill, he repeatedly felt inclined to pass water, which each time followed more freely than before. The night before he had been up nine times; the night following the use of the bougie he was up only twice; and the night after this again, was not up at all, the symptoms having entirely left him. On passing a second bougie, a few days after, no obstruction was perceived, the stream of urine being as large as ever.

About a month previous to the above attack, he had mentioned to me a discharge from the urethra, which came on suddenly after connection with his wife, and gave him some alarm, as he had only four months before been in an hospital with venereal bubo, and gonorrhœa; which complaints had been treated by mercurial frictions alone. The bubo had supplicated and healed, and the gonorrhœa had subsided, unassisted by any local means.

On the present occasion I had desired him not to allow the discharge in question to give him any uneasiness, advising him to bathe every second

morning in the sea. He did so, and in the course of a few days the discharge entirely and permanently left him.

CASE 64.

Retention, from Spasmodic Stricture.

A GENTLEMAN, 32 years of age, consulted me for retention of urine, *December 2. 1816.* His medical friend acquainted me that he had attended him about two years before for stricture, which was relieved by bougies. The present attack had come on without any known cause, but the principal difficulty was that of getting an instrument into the bladder. The bladder was full, and the frequent spasm and straining severe; but the elastic catheter in the hand of his own surgeon would not pass, with or without a stilet. Requested to introduce one myself, I first gave the stilet a greater curve, when it went readily on to an obstruction in the prostatal part of the urethra, past which the instrument presently slipped into the bladder.

The water was drawn off night and morning for a week, during which time the compound powder of ipecacuan was given. Two severe shivering fits, with violent flushes of heat, perspiration, and a low pulse at 140, led to a change in the medicine, for an infusion of bark, with tincture of opium, which agreed perfectly well.

Under this plan the health improved, in a few days the power of expulsion partially returned, requiring the catheter only once a day. In the third week of my attendance, the power of freely voiding the urine was completely re-established; when requesting that his medicines should be continued a week or two longer, I took my leave.

February 1823, this gentleman remained well.

CASE 65.

Retention, from Spasmodic Stricture.

AN officer's servant, aged 43, applied to me, *March 23. 1822.* He had been long (since 1811) troubled with complaints proceeding, as he supposed, from gravel; occasional difficulty in passing water, with a deposit of reddish-coloured sediment in the urine, sometimes containing blood. In 1817, while in the country, he totally lost the power of passing his urine, and suffered much from desire and straining. On the third day of the retention, he sat for two hours without avail over the steam of hot water. The following night he was obliged to travel, and on reaching London next morning, by straining hard he was enabled to void his urine, first in a fine, and progressively in a fuller, stream. The above attack, attributed to drinking too freely of stale beer and ale, was attended with most severe pain about the loins, as well as in his bladder, the accumulation of urine and consequent distention being extreme.

Since that period, he had repeatedly been confined to bed for two or three days with retention; until by ætherial or other medicines, he recovered the power of passing his water, first dribbling or in a thread stream, but shortly more full and easy; and by the next day perfectly free and well. In two or three days, however, the pain and difficulty sometimes returned.

He was again ill, *March 3. 1822*, from drinking bad beer. He tried to pass his water, but could not; and for a day and a night voided little, very little, with constant pain in the bladder, which was greatly enlarged. He took medicines, and by degrees obtained relief.

The last attack commenced on the 10th instant. After drinking intemperately, he as usual lost the power of passing urine; and in spite of medicine was

not relieved till the fourth day, when the retention giving way, he got rid of an immense quantity of water. A very distressing consequence, however, remained; a protrusion of the anus, that for several days pushed out to the extent of three or four inches, nearly as large as an egg. This he generally returned as well as he could, but fancied it kept up an irritation and distress about the bladder; the stream of urine again diminished, and difficulty increased, till *March 23.* when he applied to me. A fair-sized bougie, gently curved, passed quietly into the bladder, finding only one spot near the prostate, irritable; making him very happy in the assurance that there was no permanent contraction in the urethra. On examination, the verge of the anus was free from tumor of any kind. I directed him the compound powder of ipecacuanha, which taken every night for a week, operated very favourably, and in fact so improved his local feelings and general health, that he could not be persuaded of the necessity for any further dependence either upon physic or surgery, and I consequently saw no more of him.

CASE 66.

Retention, from Spasmodic Stricture.

A YOUNG man, 25 years of age, contracted gonorrhœa in *January 1821.* The heat and inflammation trifling, he neglected it and lived irregularly. He took medicines, but used no injections. The discharge continued but three weeks. In the *July* following, he suddenly lost the power of voiding his urine, but took medicines, and was relieved.

August 21. His complaint returned, and he could void no water, till relieved again by medicine. About the middle of *September*, obliged to go down to Brighton, and too late for the coach, he endeavoured to overtake it by running and walking fast, but in vain, and travelled on foot all night. His retention now returned. A bougie introduced,

enabled the bladder to relieve itself; but returning by the coach the following afternoon, he could pass no water, on reaching London. By opiates he was again relieved, but had been subject to occasional retention ever since.

Sep. 26. He applied to me, and was directed to take ten grains of the compound powder of ipecacuanha every six hours, and was soon relieved.

Oct. 2. Retention returned; but passing a bougie for himself, the water flowed instantly.

Oct. 6. I passed a small bougie of flexible gum, through the contraction at the bulb, into the bladder; directing him to take an anodyne mixture, with the camphorated tincture of opium, night and morning.

Oct. 10. He voided urine more freely. I now passed several bougies in succession, allowing each to remain a few minutes in the stricture; the last introduced was moderately large.

Oct. 22. I passed a bougie the same size as the last, but could not get it beyond the prostate gland. I therefore tried one of a larger size; this went on readily into the bladder. He was desired to lay aside both medicine and surgery for the present.

March 4. 1822. He remained perfectly well.

May 3. Complaining of some return of contraction, I passed an elastic gum bougie, one-sixth of an inch in diameter, down to the stricture; and by waiting a minute or two, it moved gently and quietly on into the bladder. In ten minutes it was withdrawn.

May 10. He said he had found great relief from the last operation.

Dec. 1822. He remained well.

CASE 67.

Retention, from Spasmodic Stricture.

Aug. 1. 1817. I was consulted by a young gentleman who complained of a discharge from the

urethra; this he suspected might arise from stricture, having found the stream of urine sometimes very small, and more than once lost the power of passing it. He had three years before had gonorrhœa, for which at its onset, he was directed to use astringent injections, and although the usual symptoms of irritable bladder, as might be expected, soon followed, he was desired to continue this treatment for near three months. Sometimes the discharge ceased, but whenever he had connection, he was sure the next morning to find the discharge had returned. Several surgeons had on these occasions declared him clapped, which if true, must prove him most singularly unfortunate.

I told him, that probably it was no such thing, for that the discharge might reappear merely from irritation in the stricture, and nothing else. He observed, that passing his water gave him most pain near the orifice of the urethra. With a common-sized bougie, I found the anterior part of the urethra irritable and painful; beyond this, the canal was healthy as far as the membranous portion, where the instrument was stopped by a stricture. The smallest-sized elastic gum bougie, however, passed the stricture, and its diameter was afterward progressively increased; the irritability and discharge diminishing as the stricture relaxed.

On the 25th of the month, all discharge and irritation in the urethra gone, and a bougie, two-tenths of an inch, passing into the bladder with ease, I told him nothing further was necessary, and he left town for Oxford.

CASE 68.

Retention, from Spasmodic Stricture.

Dec. 12. 1817. I was consulted by a gentleman, a field-officer in the army, just returned from India; where three years before, in Ceylon, much exposed to bad weather and hard service, he had a severe

attack of rheumatism, attended with constant desire to pass his water, and sometimes great difficulty in avoiding it. Invalided, he embarked for the Isle of France, and by the time he arrived there, the rheumatic complaints in his limbs were nearly well; the irritation at the neck of the bladder, and a similar affection about the rectum, were also much relieved. Here he obtained leave to return home, after twenty years' service in India.

Since his arrival, he said, his complaints had principally consisted in a want of power to take exercise with comfort; for at the period of his visiting me, he could not walk for an hour without feeling an irresistible desire to pass a motion, and in the effort (usually unavailing) he commonly voided a little urine. This attack subsided as he recovered from fatigue, and he then found himself very well again. He had never suffered, either from hepatic, or bowel complaint; neither was he in the habit of being disturbed at night, retaining his urine till the bladder was fairly filled, except when the irritation came upon him, which generally was induced by any uneasiness of mind.

A moderate-sized bougie passed with very little difficulty, and a momentary impediment from spasm, into the bladder. The urethra was very irritable, but he suffered infinitely less than he had supposed possible. Half an hour after, the impression having subsided, I prevailed on him to allow me to examine by the rectum, where the prostate gland was felt rather broad in figure, but of its natural firmness, not at all irritable. As to constitutional health, the pulse was extremely small and soft.

The opinion I gave was, that a tonic plan of treatment, unassisted by local means, would in all probability completely remove his complaints, provided it was so administered as not to disagree with his constitution.

In *Feb.* 1818, I had the pleasure of hearing,

through a medical friend who had constantly attended this gentleman, that he was much improved in health by the adoption of the above plan.

CASE 69.

Retention of Urine, from Irritation, and Spasmodic Stricture.

ON the morning of Nov. 27. 1821, I was requested to visit a young gentleman, in great distress, from having passed no water for the last forty-eight hours. On my arrival, however, I found that by spoonfuls he had got rid of about half a pint. He said, he had for several weeks had gonorrhœa, and by direction of his surgeon, had used an injection. The discharge, notwithstanding, had continued, though in less quantity, till a few days previous to my seeing him, taking a violent cold, the discharge entirely ceased, and pain at the neck of the bladder came on, with increasing difficulty in voiding his urine, till at length he could pass none at all.

The pain was great, and the tumor above the pubes considerable. From the superior smoothness of surface, and permanence of curve, I was induced to prefer a small silver catheter, which passed with little pain, and without the least obstruction, into the bladder, and drew off a quart of dark-coloured urine.

The instrument was passed again in the evening, and a similar quantity of pale urine drawn off. The febrile action had, within the last few days, been so considerable, that his parents, alarmed for his safety, and determined to leave nothing to chance, placed him very properly under the care of Dr. HOOPER.

Nov. 28. I passed the catheter twice to-day, and found more pain and irritation at the neck of the bladder, with an irksome sense of weight, tenesmus, and frequent straining efforts. Bowels regular. By Dr. HOOPER's desire, I took eight ounces of blood from the arm.

Nov. 29. The introduction of the catheter was

still necessary, the urgency of the symptoms requiring a repetition of the bleeding. Tongue rather white; pulse 90, and moderately firm.

Dec. 3. The catheter passed regularly, night and morning. I now tried an elastic gum catheter, but as it did not follow the course of the canal so readily as the instrument formerly employed, it was laid aside.

For a day or two, there had been a copious albuminous deposit, like fine powder, in the urine, with severe pain at the loins; now, however, the pains relieved, the deposit ceased. As the pain at the loins subsided, the discharge from the urethra returned, in considerable quantity; with which some little straining was still felt, when the urine was drawn off. Pulse and health good.

Dec. 6. General health improved, but still no power of expelling the urine. There appeared to be certainly a small abscess, formed somewhere in the line of the urethra, although its exact seat could not be satisfactorily made out; whenever the urethra was extended to introduce the catheter, six or eight large drops of thick purulent matter flowed slowly out from the canal.

Dec. 7. Yesterday evening, the urethra was free from any appearance of thick pus, and discharged only a thin matter. This morning the instrument, passed with the accustomed care and gentleness, gave increased pain and irritation; and when it reached the bulb was stopped, and almost instantly a dessert-spoonful of blood flowed through the tube. The catheter was withdrawn, and again very slowly and gently introduced, to no purpose; and at length was given up. In consultation, the compound powder of ipecacuanha was ordered to be given at short intervals, with immersion in the warm bath. These means had by the evening so far succeeded, that the bladder had been enabled to expel at intervals half a pint of urine. At five, P. M. I again endeavoured, without effect, to pass an instrument into the blad-

der; the obstruction was in the bulbous part of the urethra, and was not to be overcome, except, perhaps, by using force. It was therefore thought more prudent to rely entirely upon medicine. All discharge from the urethra had now ceased.

Dec. 8. Bladder still full, but not very tense, or painful. Warm bath and opiates continued, pulse and general tone were so effectually reduced, that more than a pint of urine flowed by the voluntary powers, in the course of the day.

Dec. 10. Last night he voided as much as a pint and a half of urine, sometimes a quarter of a pint at once. The bladder felt more relaxed, and contained less water evidently; the treatment was therefore continued.

Dec. 20. The power of expulsion by the natural efforts now completely restored, the medicines were gradually laid aside, and the strength soon improved. Some degree of discharge continuing from the urethra, it was deemed most prudent to leave to itself. This, as his constitutional health came round, declined spontaneously; and in the course of a few months he was perfectly recovered.

CASE 70.

Retention, from Spasmodic Stricture in the Urethra; produced by Affection of Rectum.

A GENTLEMAN, 34, surgeon in the army, desired my opinion *July 30. 1821*, for a spasmodic affection of urethra, a source of much trouble to him. During many years of active service, his health had suffered much, from repeated and severe dysenteric complaints, originating in exposure to the hottest and most unhealthy climates. In the year 1813, he was ordered to Canada, where his present complaints first commenced, in frequent desire to pass water, uneasy sensations along the canal, with itching at the glans, least troublesome during the night.

In 1814, an instrument was passed, and spasm felt, at one inch and a half from the orifice; the bougie passed the first, but not the second contraction, which was at the bulb. Upon his subsequent return to England, he had the first retention of urine, from passing bougies. Finding the bladder full, without any power of expulsion, he got into a hot bath, in which he sat for near two hours, scarcely able to support the violence of pain, from the spasmodic contractions of the bladder. The water was then voided in the bath, after the bladder had been distended the whole day. He went directly to bed, perspired immensely, and was next day well.

In 1815, he had gonorrhœa, which he allowed to go off quietly, doing very little in the way of treatment.

In 1816, the difficulty in urine returned; stream variable, but always small. In *July*, retention returning, he was bled nearly to fainting, took laudanum, and the urine flowed. The following winter he suffered more than ever. Then came round the unhappy combination between the act of passing the fæces, and evacuating the contents of the bladder. While passing a stool, the urine flowed freely, but on the first subsequent occasion spasm shut up the bladder; although towards evening he passed a free and full stream again. Sometimes the water first passed, and next the contents of the rectum; and then the urine next secreted into the bladder was sure to be retained.

1817. During the winter and spring of this year he remained much the same as before. He now tried the effect of introducing a bougie anointed with soap, which was kept in half an hour. It produced a discharge, which for several weeks relieved him. The spasm would at this period prevent the passing a small bougie in the morning, but admit a large one, generally with ease, towards evening. In *March*, the retention returned. He endeavoured

to pass some bougies, which only occasioned bleeding. A professional friend then applied leeches, and bled him from the arm, in the erect position, till he fainted; a small catheter was then got in, and he was relieved. All the next day he remained quiet in bed. On the third day the spasm returned. The bowels were now purged with castor oil, a catheter introduced, and he fainted. A day or two after this spasm returned, for which he took a large dose of laudanum, and used an enema also containing laudanum. This so completely paralysed the bladder, that when the catheter was got in, the urine would not flow, till pressure was made upon the abdomen. The catheter left in, the spasm soon subsided. The urine, heretofore clear, now let fall a white powder, which however soon disappeared; and by subsequently passing some bougies, the urethra was dilated admirably.

1818. Bougies were scarcely passed three times.

1819. Passed a bougie, on one occasion, rather violently; on the following night retention came on, but by the morning all was well again.

1820. At Naples, he had an attack of gastritis, with pain on pressure, sickness, fever, full and hard pulse; this reproduced retention, which however gave way, and a large-sized catheter was introduced. In *October*, trying to pass bougies, retention again came on; a catheter passed, was left in, and the difficulty subsided.

1821. *July 30*. His complaints again troublesome, he consulted me. On hearing the history, I thought it right to inject and examine carefully the rectum, and found between eight and nine inches along the bowel a certain degree of contraction, which there was reason to believe merely spasmodic. For several days following I passed every morning a middle-sized elastic bougie into the bladder, where it was kept for half an hour; but considering that as the passage through the bowels was always perfectly free, it was not in this case expedient to take

the chance of aggravating irritation by the introduction of bougies into the rectum.

By this means the habitual return of retention was prevented. I next passed a good-sized metallic bougie daily, for a fortnight; when he found himself completely free from any return of his symptoms, having recovered the full power of voiding his urine whenever he pleased. Soon after this he left town.

Dec. 24. Very well in health; he again found the stream of urine lessened, after a stool. There had been no retention since leaving London.

May 8. 1822. Extremely well, both in health and spirits, without having been incommoded by any return whatever of his complaints.

Feb. 14. 1823. This gentleman remained well.

CASE 71.

Retention of Urine, from Spasmodic Stricture in the Urethra; produced by Affection of the Rectum.

A GENTLEMAN, aged 29, complained in *April 1820*, that horse exercise excited an uneasy sense of weight in the rectum and verge of the anus; as this continued to increase, he concluded it arose from confined bowels, dependent on some mechanical obstruction in the intestines. He said his habit was constantly costive, or rather it seemed to him the bowel had no power of discharging its contents.

In *May*, commenced a bilious disorder of the bowels, which continued several months; during which he took quantities of blue pill and calomel. He had never suffered from pain in the bowels till it was induced by the acrimony of bilious contents, which appeared to him to act especially upon what he supposed the seat of the stricture, and when under this influence he could neither retain nor discharge his urine perfectly.

This state was followed by nervous pains in the back and loins; at times unable to walk steadily,

he would fall as if hamstrung. At length suspected to have piles, he was told to sit over warm water, on which occasions he usually washed the parts, as perfectly as he could. This operation of washing relieved the symptoms, and in *Dec.* 1821, he was in the habit of repeating his ablutions several times a day; particularly as it seemed to restore circulation and power to the limbs, especially relieving a numbness he complained of in his right thigh and leg.

For some months he had passed quantities of a peculiar transparent mucus from the bowels; and while this remained in the rectum, he generally had inclination to stool, and constant desire to pass urine; but when the mucus came away, both these symptoms were relieved. Sometimes there was difficulty in passing water, when he happened to want to pass a stool on going to bed; and if a motion passed over the bidet, he was unable to pass his urine till half an hour after. Then occasionally the urine flowed involuntarily, awaking him in the night. If after a stool he walked half a mile, desire to pass water came on, and it flowed freely, but it seemed to him the urethra was restricted during the passage of fæces. If part only of the contents of the bowel was evacuated, a sort of stricture in the lower portion of the gut was the consequence, the bowel contracting and becoming closed, two, three, or four inches up; this he said he knew to be the case, because having suspected it, he had passed his finger up to the contraction, and this it was, according to his feelings, that seemed to close up the passage of the urethra.

Dec. 21. 1821. Having come to town for that purpose, he called to desire my opinion upon the seat and nature of his complaint. From the above statement it appeared to me much more probable that the cause of his distress was in the bowel than in the bladder. Filling the rectum, therefore, with tepid water, I examined and found it healthy to the extent of seven inches above the sphincter,

where the instruments were uniformly stopped by a contraction that, although firm, was not in the least painful or irritable.

This affection of the bowel I stated to be, in my opinion, the exciting cause of all the symptoms. I wished, however, to have made a second examination after a few days, but having only come up to London for a day, he said he should leave it the following morning. I advised him to do little with regard to medicine, beyond attending carefully and constantly to the regulation of his bowels, and that by the most gentle means; cautiously avoiding every thing in his diet or habits which might disturb his general health.

CASE 72.

Retention of Urine, from Spasmodic Stricture.

AN industrious, hard-working man, applied for assistance to the Infirmary in *May* 1810. He said that the first time he lost the power of passing his water was from fatigue, in 1801; and he was then relieved by drinking hot spirits and water. In 1802, a second attack proved obstinate; a complete retention for several days produced swelling and exquisite pain in the bladder; though latterly a little water dropped occasionally from him. At last obliged to complain, medicine was taken, which operated in about an hour, and removed the complaint.

After an interval of two years the complaint returned, and continued for a fortnight; he was able to get rid of his water, but with difficulty. Obligated to apply for assistance, the contraction was now overcome by mechanical pressure; a bougie was passed through the stricture, which once relaxed did not contract again.

In 1808, another attack came on, which, like the former, was relieved by the bougie.

Jan. 1810. When the retention returned, he

made known his having had it removed by the bougie, upon which one of good size was introduced, but would not pass the stricture. The pressure by which the instrument was urged forward was rather considerable, but to no purpose. A trifling bleeding followed. Opiates and the warm bath completely relieved him in twelve hours.

May 1810. His complaint returned. A bougie of moderate size stopped at five and a half inches, was so firmly grasped by the urethra, that to withdraw it required a force equal to more than a pound weight. The warm bath, with repeated doses of the compound powder of ipecacuanha, aided by a day's rest, enabled him to pass his water freely.

Towards the end of the month complete retention returned; as rest was indispensable, he was advised to come in, and did so on the 21st. His former treatment now failed, till on the 24th he began to pass a little water. He now complained of an inflammatory swelling upon the last joint of his little finger, with extreme tenderness over the whole of the left hand. The hand was well fomented. His urine passed in a small stream, with much exertion and straining. In the evening the stream was observed to be much more full and free.

On the 25th the hand much worse, the pain with great violence darted through the fore finger of the right hand. Both hands were fomented. In the course of the evening the right hand was as severely affected as the left. The urethra now was so much relaxed, that the urine flowed with scarcely any straining. He observed that immediately the pains came on in his hands, he felt the complaint in his bladder begin to mend.

He this day complained of his right knee, extreme heat, pain, and swelling; and on the 28th his left foot became painful and inflamed. With some pain in the head, the pulse was small and hard, at 112. In his right knee there was evidently a considerable effusion of fluid, into the capsule of the

joint, floating up the patella. Integuments somewhat tumid, motion gave extreme pain. By rest and diaphoretics he soon began to mend; but on the 9th of *June* his retention returned with extreme urgency of desire to empty his bladder. This attack, it is curious to remark, entirely and spontaneously subsided in two hours. *June 23.* Violent inflammation came upon his hands, without any correspondent relief to the complaint in the urethra. The former treatment was repeated.

Sept. 24. He experienced another attack of complete retention. The following morning he came to me in great pain. Bougies and flexible catheters failing, I desired him to go home, wrap himself in warm blankets, and take ten grains of the compound powder of ipecacuanha every two hours, till he was relieved; by these means his complaint was in the course of the day removed. He remained pretty well till *Nov.*, when the irritation and spasm suddenly returned in full force upon the urethra; and he was again relieved by the same means as before.

From this period he enjoyed tolerably good health till the latter end of the following year.

In *Sept. 1811*, he was again confined to bed for nearly four months by a most severe attack of his old complaints, in his joints and limbs. For more than two months he could neither stand, move, nor feed himself. The stricture during this interval was troublesome, repeatedly preventing for a day or two the passing his water, without great difficulty; but when the symptoms of rheumatic gout began to subside in his limbs, a most distressing degree of irritation settled itself upon the bladder. The desire to pass water was now extremely frequent, as well as violent. Sometimes, notwithstanding the warm bath, opiates, and other medicines, he was for two or three days together unable to void a drop, with straining severe beyond description. He recovered so slowly, he was not able to go to work till the end of *December*.

In *Dec.* 1813, he was again, from his old complaints, deprived of the use of his limbs; all the joints of his fingers and toes being severely affected, but the first joint of the left little finger most particularly. This attack produced more heat and swelling than any of the former, threw out chalky matter, and was, in the little finger, followed by ankylosis of the joint. As he never could be persuaded to allow of any regular or continued treatment for the further relief of the stricture, that contraction, formerly pure spasm, became, to a certain degree, a state of permanent obstruction. He was generally able to get rid of his water, but always in a small stream, and sometimes with great difficulty.

Jan. 1816. Again in the infirmary; he remained several weeks entirely helpless, from the gouty affection of his joints. The stricture was much as usual.

The foregoing account illustrates the circumstances under which spasmodic stricture may commence, exhibiting the symptoms that generally usher in the change from a spasmodic to a permanent contraction. While the affection was pure spasm, no mechanical force would overcome the obstruction, although it might with certainty be removed by antispasmodic and diaphoretic medicines. But as the state of things changed, the remedies that, at first, never failed, operated with diminished power, and latterly, lost their effect altogether.

Feb. 1819. The stricture being still a source of perpetual distress, he allowed me to pass down, first, a plain bougie, and then one with the kali purum, to a contraction at four inches and a half. From this, he felt an aching and heat, and when removed, bleeding to the extent of an ounce followed. After this, he made water easier than for many weeks before.

March 27. Bougies of several successive sizes

were passed with ease through the stricture, which he now felt little from ; and subsequent to this, it never produced any return of retention, though I occasionally saw him for his gouty complaints, till at length, enfeebled by continued suffering, he died, *Aug. 2. 1821.*

Obliged, after overcoming several difficulties, to examine the body alone, upon the floor of a very dark and close cellar, the enquiry was made under disadvantageous circumstances. His death had been hastened by severe gouty pains flying about his stomach and bowels ; but I could ascertain no particular change in these parts. The effusion of chalky matter was found to have taken place upon the cartilaginous surfaces of most of the joints of the hands and fingers ; but most abundantly and extensively into the cellular texture of the periosteum, and particularly into the cellular membrane of the ligaments, and capsules, of the joint. The large tumor and stiff joint of the metacarpal bone, with the first phalanx of the indicator, was produced by a great accumulation of this matter in the cellular membrane, and also in the theca of the tendons. On subsequent maceration, the first joint of the little finger was found perfectly ankylosed, and a part of each spongy end of one of the metacarpal bones absorbed ; a small quantity of urate of soda was deposited in the space, though it lay loose. The bladder and urethra were brought away. On opening the bladder, there was no appearance of disease ; but in the urethra, at different points, were several impressions, from attempts to pass bougies. The spot to which the kali had been applied was just visible, the contracted circle appearing to have been perceptibly eroded, for the breadth of a thread.

CASE 73.

Retention, from Spasmodic Stricture, with Disease of the Prostate Gland, and Vesicula Seminalis.

A MAN, aged 66, applied to me in *Feb.* 1817. He said he had for some years observed a progressive diminution in the stream of urine; but little attentive to himself, had not felt much inconvenience till *June* 1816, when the efforts to pass water were frequent and distressing. In a violent fit of straining to empty the bladder, he felt a sudden gush of water backward by the anus, which, at first, he could not understand. He, however, felt relieved, and for the next three months, his urine principally passed off by the bowel. The opening was then supposed to have closed, as the urine came entirely by the urethra; voided with difficulty, about every two hours.

Jan. 14. 1817. His complaints had increased; and in straining to empty the bladder, the urine again burst through as before, into the rectum, continuing to flow by the bowel, with tenesmus, and irritation at the neck of the bladder. A small plain bougie stopped at four inches and a half, but he suffered so much from this, that he would not hear of any other application.

March 17. His complaints were progressively increasing, the urine still passing through the bowel. The distress from irritability of the bladder, urethra, and intestine, allowed no respite; notwithstanding opiates, and other anodyne medicines, calculated to afford relief. The rectum was now examined, but I could not perceive any manifest enlargement of prostate gland, although there was reason to believe it was diseased. His extreme silence and reserve, however, prevented any very satisfactory opinion being formed, upon his complaints, which were, however, attended with most distressing irritation.

April 19. In every respect worse ; and evidently declining fast, I repeatedly, but in vain, proposed to pass bougies into the bladder. Thus obliged to rely on medicine alone, he continued to sink ; and died the 19th of *May*. With great difficulty, his wife agreed that I should examine the body.

Upon dissection, the bladder was found scarcely at all thickened, but healthy, excepting a number of minute stellated appearances on its internal surface, some of a dark-grey, others scarlet, and a few towards the neck of the bladder, that were covered with little patches of effused lymph, like millet-seed.

The urethra was free from stricture, and large, all the way to the membranous part, where some degree of stricture still remained ; although the principal cause of obstruction, during life, had obviously been pure spasm.

From the general feel of the parts, on their removal, it was presumable the prostate gland was enlarged. But the careful and patient dissection of the parts at length completed, proved that the whole tumor was the result of a very enlarged and indurated state of the left vesicula seminalis. Its texture was firm as gizzard, and it was so altered in appearance, that the true seat of the disease could be determined only by tracing its connections. A longitudinal section was made, laying it open, and it then appeared that the coats of the vesicula were exceedingly thickened. The cellular cavities within, much enlarged, were filled with a pale yellow cheesy substance, more consistent than scrofulous matter generally is, yet resembling it.

The opposite vesicula, towards its opening from the vas deferens, was becoming thickened, although its further extremity was unaltered, the cells exhibiting no trace of coagulable deposit ; but, on the contrary, partly filled with the thin brownish fluid natural to these cavities.

The greatest part of the substance of the pros-

tate gland was destroyed by ulceration. The caput gallinaginis was in a natural state, but on each side the middle line in the prostatal part of the urethra a large opening had formed into the abscess within the gland, the cavity of which was coated with coagulable matter, resembling that produced in scrofula.

From the posterior part of the prostatal abscess, a small opening had ulcerated into the rectum; the perforation in the intestine being situated about an inch within the sphincter. The surface between the ulcerated opening and the external orifice of the bowel had the appearance of irritation, and contained a cluster of enlarged and varicose veins.

The left vas deferens towards its termination was enlarged, and filled with a matter similar to that with which the corresponding vesicula was loaded, its coats at the affected part much thickened.*

SECT. XIX.

Of Retention, from Permanent Stricture.

608. WHEN the long continuance or severity of the symptoms from spasmodic stricture, or other cause, have led to the circumstances above mentioned (605.), they are usually attended with a degree of permanent contraction in the urethra, to which may be occasionally superadded, attacks of severe spasm, with other sympathetic affections already described, by the joint operation of which, several new consequences of disease are progressively brought forward.

609. The continued irritation from the stricture excites perpetual uneasiness and discharge from the anterior part of the urethra. The constant exertion and aggravated straining to empty the bladder, is productive of distention, irritation, and inflammation in that part of the urethra between the bladder and the stricture; and the inflamma-

* The disease is preserved in Mr. HEAVISIDE's Museum.

tion and mischief thus excited frequently proceeds to a considerable extent, spreading itself to the surrounding parts.

610. It is by this means that nature, when unassisted, seeks to relieve herself in the formation of a new passage for the urine, and this effort generally to a certain extent succeeds, inasmuch as it averts present danger, which otherwise might, in a few days, prove fatal; although in its subsequent consequences, the remedy proves sometimes almost as formidable as the disease.

611. The mode in which these changes are brought about, is the following. The frequent and almost unavailing efforts of the bladder, keeps up a constant pressure of urine against the sides of the urethra behind the stricture, in consequence of which this part of the canal suffers progressive enlargement; but the cause continuing to operate, the effect does not stop here. Irritation supervenes, and this imperceptibly runs on to inflammation, frequently followed by effusion of coagulable lymph upon the internal surface of the urethra. Ulceration of some part of the inflamed surface subsequently takes place, and the urine making its way out into the cellular membrane surrounding the urethra, gives rise to an œdematous tumor in the perineum, scrotum, or both. In this way irritation from urine effused into the cellular texture, commonly excites inflammation beneath the integuments, inducing in its turn either abscess, or mortification, according to the prevailing state of constitution.

612. Where matter thus formed becomes soon apparent, and is promptly let out, the complaint may take a favourable turn; and, provided the powers of the constitution are not too much exhausted by previous suffering, the excess of local irritation subsides. The health improves, the appetite returns, and the unhealthy cellular membrane separating, the ulcerated parts contract; and

all that may ultimately remain may be one or more small fistulous openings in the perineum, by which for a time the urine may continue to be more or less freely evacuated.

613. The morbid appearances produced by stricture in the urethra are extremely various. Where active inflammation of a considerable extent of the anterior portion of the canal, from injecting for gonorrhoea, has been brought on, it generally induces permanent thickening of the coats, and permanent contraction of the canal of the urethra. (Case 53.)

614. Where the cause has been some external violence, or contusion, the severity of the subsequent complaint will depend on the circumstances of the accident, and the propriety of the early treatment. Severe bruise, followed by the destruction of some extent of the urethra is commonly productive of a very troublesome stricture, in the seat of the injury; the newly formed parts having a constant tendency to contraction, very difficult to keep in check. (Case 50.)

615. When stricture assumes its most ordinary seat, in the bulbous or membranous portions of the urethra, the extent of the contraction is almost always very small; and although during life the whole system of the urinary organs may have had their functions disturbed by an almost complete retention, yet should the contraction prove to be spasm, scarcely any distinct trace of it may be found on examination after death.

616. Stricture, subjected to occasional attacks of irritation or inflammation, generally becomes by degrees more compact in texture, and more permanent in character; and where a contraction in the urethra, producing symptoms of permanent stricture, has been of many years' standing, it sometimes acquires the firmness of cartilage, and may become so nearly impervious, as with difficulty to admit the passage of a common bristle.

617. It is in these latter stages of the disease

that the consequences adverted to (609.), are liable to occur, leading to the production of urinary abscess; the appearances of which, as will be seen by reference to the cases, are merely those of ulcerated cavities in the indurated and diseased cellular substance, with fistulous openings from the urethra into the abscess, and from the abscess outwardly through the external integuments.

618. Of these diseases, numerous and rare specimens, exhibiting all their varieties of character, are to be found in the Museum of Mr. HEAVISIDE. Some valuable examples of these complaints, and their consequences, may be seen in the Museum of the Royal College of Surgeons; and many interesting preparations, illustrative of stricture in the urethra, I have also had the pleasure of examining in the Military Collection at Chatham.

619. Where there is reason to fear the more distressing consequences of stricture in the urethra, they can only be prevented by affording timely relief; when, however, the urine has once forced its way into the cellular membrane, producing inflammation and abscess, even the removal of the obstruction in the urethra will not always succeed in relieving the complaints derived from it.

620. One of the latest and most distressing sympathetic complaints to which stricture in the urethra occasionally gives rise, is a sudden attack of violent shivering, succeeded by feverish heat and sweating, — an attack which is generally of so intense a character as to create on its first appearance considerable alarm for the safety of the patient.

621. This affection is not unlike the paroxysm of ague, but it is much more severe, and sometimes attended with delirium. It is frequently the result of the application of caustic, and, like the hæmorrhage that now and then occurs under the same treatment, has been considered a favourable circumstance, as an indication that the stricture is about to give way.

622. In the treatment of stricture, it has been

observed that the bougie is the most appropriate means of relief, and in fact all that is adviseable to recommend, while the moderate irritability of the urethra admits of its adoption. (604.)

623. With regard to the comparative merits of the different kinds of bougies, there have been various opinions. The common wax bougie is that which, till lately, has been in most general use, and for several reasons I think it frequently merits a preference. Some surgeons are in the habit of using bougies formed of catgut; and in very contracted strictures, that refuse to admit the smallest-sized wax bougie, the catgut bougie often proves useful, and may be applied with advantage.

624. It has been objected to the common bougie, that it loses its proper firmness when allowed to remain for any length of time in the urethra; but this objection applies in a much greater degree to the bougie of catgut, which absorbs moisture rapidly, swelling, and untwisting its fibres to that extent as to occasion sometimes considerable distress at the neck of the bladder, and producing great pain when withdrawn.

625. The bougie of elastic gum is infinitely less liable to these objections, than either the catgut, or the common bougie; and it appears to me, that in cases where stricture is connected with affection of the prostate gland, the gum elastic is preferable to the wax bougie; at least, I have found it upon trial, in several such instances, answer much better; passing through the stricture with more ease, and slipping over the projecting parts of the enlarged prostate, with less uneasiness to the patient. The elastic bougie rarely excites irritation, which often renders the introduction of the common bougie improper, a circumstance attributable only to the superior smoothness and softness that enables the elastic gum to follow with comparative facility the course of the canal.

626. One quality held desirable, is the power of receiving and retaining any particular degree of

curvature chosen, and upon this ground principally the metallic bougie has been introduced into practice. This bougie, at first view, might be expected to answer very well, but it is, notwithstanding, in my opinion, a most objectionable instrument. In occasional instances, these bougies have broken in the urethra, a part has escaped into the bladder, and it has been necessary to save the patient from the ill consequences of increasing irritation, and inflammation of the bladder, by cutting it out, by the operation for stone.

627. It has indeed been asserted, by those who recommend metallic bougies, that even should this accident occur, there would be no difficulty in dissolving and bringing it away, by injecting a quantity of mercury into the bladder, which it is said, will form an amalgam, and the whole being thus rendered fluid, will come away by the urethra. That this effect would take place in an elaboratory is very certain; but that the same result would follow within the bladder, in the living body, appears to me extremely doubtful, where there is not only the urine, but the various mucous secretions from the kidneys, ureters, and bladder, which matters it is well known, have a strong tendency to form a precipitate, in the course of a few hours, upon the surface of any extraneous body introduced into the bladder; a circumstance which must interfere with, or prevent, the mutual action of the metals upon each other.

628. In using the bougie, the point somewhat incurvated upward, and the instrument lightly rubbed with oil, to be passed gently down the urethra until it stops at the seat of the contraction, a moderate degree of pressure is then to be made against the stricture, and continued for a short time; but should the instrument not then pass, it must be withdrawn, and one a size smaller substituted. It will thus be ascertained, what particular sized bougie is most suitable to the degree and tone of the contraction.

629. The bougie determined upon for use, should be so large, as to pass the stricture by the aid of a moderate degree of pressure; the period for which it is allowed to remain, must be regulated very much by the feelings of the patient, and the same rule must also direct from time to time, an occasional increase in the size of the instrument.

630. In the use of the bougie, however, it has been already shown, that the least deviation between the line of pressure, and the natural course of the canal, at the part where the point of the instrument may happen to be, is sure to do harm, invariably tending to lay the foundation for, if not actually to produce, a false passage; and the instance already adverted to (556.), where this took place, proves that no person is equal to the task of introducing bougies for himself, without some risk of getting into this dilemma; which, besides other inconveniences, frequently proves an endless source of embarrassment to the surgeon, when at some future time, it may be essential to the safety of the patient, that an instrument should be got into the bladder. Wherever a false passage has been made, it is sure to catch the point of any instrument that is passed, rendering it extremely difficult afterwards to introduce either bougie or catheter, however urgent the occasion.

631. Sometimes, from the unjustifiable attempts of ignorance, the patient is exposed to the most serious effects of violence of this kind; a striking instance of which, occurred lately to the notice of my friend Mr. SPILSBURY, of Walsall, to whom I am indebted for the following particulars. A young man, urgent to pass water, but unable to make any, applied to the nearest practitioner, who hastily passed an instrument, using much force; great pain, a cupful of blood, but no urine followed. He sought larger instruments, but happily found none. Medicines were ordered, but the night passed without relief. The next morning

ushered in the practitioner, with an instrument sufficiently long to reach the bladder; declaring he had failed only from this cause. Increased violence now used, more than a pint-basinful of blood flowed, but no urine. The poor man was, however, comforted, by hearing it was all for his good, and that, but for the loss of blood, he would have lost his life, was told, that he was certainly much relieved. The day after this, left to his medicines, shivering, followed by drowsiness, came on. In this state, on the third day of the retention, Mr. SPILSBURY was earnestly requested to see him. On being roused, he was able to put out his tongue, which was dry and furred; but he sunk directly again into a doze. His safety evidently depended on emptying the bladder, but the violence of his struggles required five men to restrain. A catheter, however, was introduced, and at the membranous part the wound in the urethra was felt, and a false passage found; all but driven into the rectum. The opening lightly pursued, the point of the instrument, by the finger in the bowel, was felt all but through the coats of the gut. Withdrawing the catheter, and then keeping the point close against the pubes, it slipped readily into the bladder, and four pints and a half of dark-coloured urine were drawn off. In three hours, the pulse rising, he was bled from the arm, and his bowels opened. In the course of the night, the catheter slipped out, but was easily re-introduced, and kept in for several days; during which period, a smart attack of peritoneal inflammation was relieved by free leeching, warm bath, and other proper means. In a few days, the power of passing his urine having returned, he was able to leave his bed, and soon perfectly recovered.

632. The method of passing an instrument, so as to most probably avoid the difficulty of getting its point entangled in any false passage that may exist, is demonstrated by the morbid anatomy of

the parts. We find almost invariably, that when a false passage is produced in any part beyond the curvature of the urethra, it is on the posterior side of the canal; and consequently, if the instrument has sufficient firmness to admit of its point being pressed against the opposite, or anterior part of the urethra, in its way into the bladder, it may slip past the opening leading out of urethra, and thus reach its destination in safety.

633. The frequency with which the operation of passing a bougie should be repeated, must depend very much upon circumstances. Should the stricture be in an irritable state, and the retention of the bougie in the urethra painful, it may not be proper to repeat it at a shorter interval than a few days; but if no uneasiness be produced, an instrument may be introduced every day.

634. The length of time the bougie should be kept in the stricture, must be also regulated by the feelings of the patient, and the sensations excited in the parts. One minute being long enough in some cases, while two hours is a convenient period in others.

635. Should repeated attacks of aggravated spasmodic contraction have rendered a stricture exceedingly distressing to the patient, perhaps inducing irritation at the neck of the bladder, it may be unadvisable to meddle with the stricture, unless in the most gentle way possible. The degree of irritation in the bladder may forbid any but the most cautious measures. The strictured part of the canal may be nearly impervious, but it may still be necessary to confine the treatment almost entirely for a time to the exhibition of opiates and diaphoretics, the use of the warm bath, and other means known to succeed best in relieving irritation, and removing spasm.

636. Where stricture becomes so irritable as to prevent the use of the plain bougie, while treatment is nevertheless indispensable; should the extreme

irritability of the parts be such as not to endure the introduction of a bougie at all, it may be advisable to bring the constitution at once under the continued influence of a series of opiate and anti-spasmodic medicines, enjoining absolute quietude and confinement to bed. (Case 69.) In a few days the symptoms may relax in severity, and it will then be right to make an application locally that will still further assist in lessening the irritability, and diminishing the tone of the stricture.

637. The application proposed is the kali purum, or caustic vegetable alkali, a small particle of which, the size of a common pin's head, let into the point of a soft wax bougie, is to be passed quietly but quickly down to the seat of the contraction, and allowed to dissolve there, by pressing it for a minute against the stricture. The usual sensation experienced from this application, is a temporary feeling of glowing heat, rarely severe. The usual effect, is immediate relief to the symptoms.

638. In some instances, a single application of the kali purum to a very irritable stricture, has for a day or two not relieved, but rather aggravated the symptoms; but in every such case, as far as my experience goes, the irritation, by the proper use and management of anodyne medicines, has afterwards diminished rapidly, leaving the patient very much better than before the operation. The stricture under this influence at once changes its characters, and not only then, but usually for a long time afterwards ceases to be at all troublesome. (Case 76.)

639. I have, in some few instances, examined the urethra after death, where this remedy had been applied, and from being able to perceive scarcely the least change in the smooth surface of the fine membrane, have had the clearest evidence that the only material power it exerts is that of changing the temper and diminishing contraction in the stricture; provided the application is made with care, and the operation is performed by one who regards his

patient's future comfort, as well as his own reputation.

640. Where the stricture is contracted, but not irritable, refusing to admit the smallest bougie, the kali purum will be equally proper, and will generally be found equally useful. (Case 82.) A single application will, in many instances, be sufficient to afford a very considerable degree of relief, obtaining a perfectly easy passage for bougies, that previously could not by any justifiable degree of force be made to enter the stricture; and enabling the practitioner, in many cases, to proceed afterward with the plain bougie, in progressively dilating the contracted part of the urethra.

641. I am not aware that the rationale of the action of the caustic alkali in stricture, has ever been entered upon farther than by stating the fact of its tending to relax spasm, and diminish irritation; it appears to me, however, that the principle upon which it operates so powerfully, is clearly the same that I have already endeavoured to explain in the effects produced by the internal use of alkalies, in relieving an irritable state of bladder. (228.)

642. The above, is the only preparation of caustic that I have now for some years had occasion to use; and I am disposed to believe, that very few instances of stricture occur that may not, under proper management, be rendered tractable by this means. Mr. HUNTER, it is true, occasionally applied the lunar caustic, and Sir E. HOME's extended observation was the means of establishing the character of this practice. It appears now, however, to be less generally adopted than formerly; and within the circle of my own observation, it has certainly appeared practicable to relieve these complaints by other means, not productive of the injuries or inconveniences that do occasionally follow from this application.

643. The permanent relief of the stricture, most commonly includes that of all its symptoms, or con-

sequences. The irritable bladder, frequent desire, and straining to pass water, the distress from the continual escape of urine from fistulous openings, and the discharge from abscesses, in perineo; all these ills, and occasionally others, experience a spontaneous improvement, on bringing about a comparative freedom in the passage through the urethra. (Case 88.) Where, however, the early stages of abscess in perineo require attention, its treatment must be regulated upon the principles laid down for the management of tumor from contusion of the urethra. (504.)

644. As to the treatment required for the relief of the feverish paroxysm which occasionally attacks those who are labouring under stricture, it is very simple. The patient should be immediately laid in a warm bed, and drink plentifully of hot tea, or hot spirits and water; or if the moderate severity of the attack will allow, he may first take an aperient draught, with a view to clear the bowels, and subsequently a pretty strong dose of opium; so as to favour the establishment of a copious diaphoresis, which generally effects a solution of the attack.

645. The consequences of complete retention have been, in some rare instances, very curiously developed, in the appearances observed where a child, at birth, has died from mal-formed and imperforate urethra. The uniformity in the state of the parts, in repeated examples, lead on to a conclusion, in a physiological point of view at least, important; inducing, in the reflecting mind, an admission of the extreme probability, if not certainty, that in the human foetus urine is not only secreted, but voided, for some time previous to birth.

646. In *October* 1810, I was requested by my friend Dr. MERRIMAN, to open the body of a male infant, born alive in the 8th month; it languished, apparently in pain, and died the same evening.

The feet were distorted, the anus imperforate, and the lower part of the abdomen occupied by a

large circumscribed tumor. Dividing the parietes, this tumor protruded, white, elastic, and filled with a fluid. On each side of this tumor was a long membranous tube, large as the finger, and curiously contorted; these, also, were evidently filled with a fluid. The central cyst was comparatively dense, firm, and opake; the convoluted tubes much thinner, and nearly transparent. The tubes terminated above, on each side the loins, in what appeared to be a mass of small hydatids; below they passed into the pelvis, with the principal tumor. These parts engrossed nearly the whole cavity of the abdomen; the other viscera forming a very small proportion of its contents. These singular appearances were produced by the bladder, ureters, and kidneys, having been subjected to the effects of excessive distention, from accumulation of urine. The parts were removed; but before this could be done, it was found necessary to puncture the bladder, when a jet of clear limpid urine sprung forth with violence. The kidneys, ureters, bladder, and urethra, were then dissected out, and the difficulty cleared up, by examining the urethra. On passing a large bristle from the external orifice, half an inch along the canal, it was found to be imperforate; and by introducing a fine silver probe in the opposite direction, into the urethra, from the cavity of the bladder, it appeared, that the canal was impervious for the extent of a quarter of an inch. The quantity of urine contained in the bladder alone, was at least seven or eight ounces. The coats of the bladder had attained a very extraordinary degree of strength and thickness, probably to resist distention. It had, notwithstanding, given way posteriorly, where a large pouch, or cyst, was formed. The convoluted appearance of the ureters was as remarkable as their great increase in magnitude. The kidneys resembled a congeries of small hydatids, no larger than garden peas; loosely connected together by a cellular texture. There was no visible

remains of, nor any appearance at all, resembling the natural structure of the kidneys; yet, from considering the appearances, it was clear, in my opinion, they must have continued to secrete urine, till the infant died; an event probably consequent to continued pain and irritation from the state in which the urinary organs were found, on dissection. This singular preparation is preserved in Mr. HEAVISIDE's Museum.

647. Dr. IVANOVE, a most intelligent young physician, from St. Petersburg, in looking over my portfolio, upon seeing the drawings I had made from the above preparation, acquainted me, that he had dissected a child born at the full time, who lived forty-eight hours; where the urethra imperforate, the bladder was much, but the ureters still more distended with urine. It was supposed, by those present, that these changes might have been the result of secretion after the birth.

648. In the following similar instance, for the particulars of which I am indebted to Mr. BRODIE, "a male foetus, of nearly the full time, was brought into the dissecting room, in whom the external orifice of the urethra was deficient, in consequence of original malformation. The bladder was found moderately distended with urine; the ureters were also distended with urine, as were the infundibula and pelvis of each kidney. The urine was examined by Mr. BRANDE, who found it to have the other properties of urine, but to have no uric acid in its composition."

CASE 74.

Retention, from Permanent Stricture, relieved by Puncture of the Bladder.

A GENTLEMAN, aged 32, visited me on the afternoon of *February 9. 1818*, in great distress, having passed no water since the early part of the morning. He had for the last few days perceived increasing

difficulty, but had never entirely lost the power before. I passed a small silver catheter, and found irritability and contraction at the bulb ; it was passed with ease, and drew off two full pints of urine. I directed him to take the compound powder of ipecacuanha, in a draught night and morning.

The following day, *Feb.* 10. I drew off the urine, as before. He complained of cold and face-ache.

Feb. 11. This morning he tried to pass his water, and with some difficulty voided a little. In the evening I endeavoured to pass the catheter, but failed. An elastic gum bougie was therefore passed down and allowed to remain in the stricture, while I prepared an elastic catheter one size smaller than the bougie ; the moment the one instrument was withdrawn, the other was introduced, and by this means passed into the bladder with ease. The anodyne draught, as before, directed to be repeated at short intervals, enabled him again to pass his water by the natural efforts. During the use of this medicine, a copious perspiration coming on, removed the attack of cold and face-ache, relieving at the same time the contraction in the urethra.

Jan. 9. 1819. Called on me in the evening in great pain, having passed no urine since the morning, and then only in drops, with straining and difficulty. I was partly aware of the state of the stricture, having many times in the course of the preceding year been called up at night, to draw off his water. I tried the smallest-sized flexible bougies and catheters, but could not pass them. I therefore directed him a powerful anodyne, to be taken immediately, and repeated in two hours ; after which I called on him at his lodgings, and endeavoured again without success to pass an instrument. The pain and spasmodic irritation from the distended bladder were now productive of such extreme distress, that I promised to give him relief on the following day, either by an instrument or by an operation.

Jan. 10. At noon Mr. HEAVISIDE and myself paid him a visit, and we both failed in endeavouring to introduce either catheter or bougie by the urethra. The bladder was sufficiently distinct above the pubes, but on examining, I was led to prefer puncturing by the rectum.

The patient was laid on his back, the perineum presenting, as in the operation for the stone. The fore-finger of my right hand then passed into the rectum, and the canula of the curved trocar introduced upon it, I adjusted the position of the instrument, fixing the end of the tube in the hand against that part of the bladder where the puncture was to be made. I then introduced the stilet, and pressing the point home, passed the whole instrument forward through the bowel into the bladder. The stilet removed, three pints of urine were drawn off, to his infinite relief and comfort; the canula, secured by a proper bandage, was allowed to remain in.

Jan. 11. Doing well. On paying my evening visit, I found he had suffered much pain and irritation, and had passed a considerable quantity of urinous and bloody fluid by the anus, and had also voided with great straining by the urethra, in spasmodic starts, eight or ten ounces of nearly pure blood. The pulse was at 90, with much thirst, but a clean tongue, and no material tenderness on pressing the bladder externally. I now withdrew the canula, desired him to take linseed tea, and directed sixty drops of laudanum with five grains of antimonial powder, in a draught, every six hours.

Jan. 12. Had passed a good night, and this morning had a small easy stool; very little urine passed by the rectum, while on the night-chair, but during the day a full pint of urine flowed by the urethra, an ounce or two at a time, with fits of straining, much less violent than he had been formerly accustomed to. The urine deposited a small quantity of yellowish purulent sediment, with specks of red blood. Pulse full, soft, 100; skin freely per-

spirable, tongue clean ; without the least remaining tenderness in the region of the bladder. In a note he sent me this evening, he observed, " I feel very little alteration since the morning ; the pain in making water is severe, and it comes in small quantities, a table-spoonful at a time. The bloody discharge has ceased, and it is now deep-coloured water."

Jan. 13. In the course of the day he passed by the urethra above a pint of high-coloured urine, none by the rectum. He took castor oil, which operated comfortably. The anodyne was repeated.

Jan. 15. The urine now almost perfectly natural. He could pass with little effort two ounces in a very good stream. The urine still somewhat turbid, with the appearance of white powder in small quantity, subsiding to the bottom.

Jan. 17. Retained his urine eight or nine hours, and had slept soundly through the night.

On the 23d, passed a small-sized elastic gum bougie with some difficulty through the stricture ; and now perfectly recovered from the operation, I pointed out the propriety of his having the stricture attended to. Engagements, however, obliging him to leave town, prevented this, and I took my leave.

August 1822. I had the pleasure of seeing this gentleman, who told me that since the time of the operation his complaints had given him no trouble.

CASE 75.

Retention, from Permanent Stricture.

A MAN of weak and irritable habit, aged 44, applied for relief to the Infirmary, *March 20. 1819*, for a retention of urine. In extreme agitation and distress, he said he had not passed a drop of water since the morning of the preceding day, and was in the most severe pain. The bladder high in the abdomen, would not bear the least pressure. A very

small wax bougie was stopped by a stricture, near the orifice of the urethra, and it appeared that when with difficulty a bougie was passed along the canal, it was in a state of uniform contraction for near two inches from its external opening.

He was directed to be immediately put to bed, to have ten grains of the dovers powder every three hours, and to be immersed soon as possible in the warm bath; and Mr. HEAVISIDE desired me to see him in the evening, to puncture the bladder if necessary. On my evening visit, however, I found he had three times passed water, having voided in the whole near two quarts of urine. He expressed himself infinitely relieved, and very thankful, and was directed to remain quiet, and to take another of the powders on the following morning.

March 23. Much improved, and able to pass his water now in a steady good stream. I introduced a small-sized elastic gum bougie into the bladder, with some hesitation for the first two inches, but none beyond. He was so far recovered, that he requested, on account of his family, he might return home, and was therefore discharged.

CASE 76.

Retention of Urine, from Permanent Stricture.

IN *October*, 1818, I received a visit from a gentleman who had come over to me from Dublin, on account of stricture in the urethra. The stream of urine had for some time become progressively diminished, and occasionally it was passed at short intervals.

The smallest-sized bougie of elastic gum, supported by a copper wire, ascertained a contraction at five inches and a half, which it just passed through, not without hesitation, but without pain. The same bougie was introduced daily for a week, and then one a size larger during the second week, when a third size was passed with ease. Under this im-

provement, I found he was so well acquainted with the management of bougies, he might occasionally pass one himself; seeing no necessity for his remaining longer in London.

The following year he visited me again, when it was necessary to go over the old ground, which again brought the stricture into a comparatively relaxed, and much improved state. In 1820 I had the pleasure of seeing this gentleman again; bougies were passed, and the symptoms relieved.

Oct. 18. 1821. He again visited London, when I found it necessary to apply the kali purum, the stricture refusing any longer to admit a bougie. He said he had, of late, felt rather a want of power to retain his urine, with very frequent desire to pass it, and yet difficulty in voiding it. A composing draught was directed for bedtime.

Oct. 19. The caustic had given little pain, exciting only a temporary sense of heat in the part. During the night, desire to pass water coming on, he had got up, and strained without effect. He then introduced the smallest of his own bougies, pressing it down to the stricture; by this means, he was enabled to pass a tea-cupful of water, much to his relief. Notwithstanding his anodyne, he had passed a bad night, with uneasiness in the stricture, pain in the region of the bladder, and about the back and loins.

Introducing the smallest elastic gum bougie down to the stricture, it passed on to the bladder. In five minutes it was withdrawn, and one a full size larger was passed with equal facility, directly and freely into the bladder. In ten minutes, it was removed, when he felt a desire to pass water, and voided near two pints of urine in a fuller and better stream than, for years before he could at any time have done. At the bottom of the chamber-vase was a small coagulum of blood, as large as a small pea.

Oct. 20. Had slept indifferently; but every symptom relieved, compared with the preceding night. The bougie passed the day before was again introduced; but with somewhat less facility.

Oct. 26. He called, and acquainted me that having been on a visit to a family at Highgate, he had been several days confined with most intense shiverings and fever. No bougie was passed to-day, as the water flowed freely. I thought it more proper to direct an anodyne with the compound powder of ipecacuanha, and tincture of opium, to be taken at bedtime. This proved exceedingly useful.

Oct. 27. The larger-sized bougie passed into the bladder with ease and comfort. He took a gentle aperient; and had only occasion to void his urine twice in the course of this day, and not once through the following night.

Oct. 30. All uneasiness and frequency in passing his water having subsided, and finding he had the power of introducing a bougie four sizes larger than the smallest with ease into the bladder, he felt every satisfaction in being told he might fix his day for returning home, and accordingly took leave.

Oct. 1822. Being in London, my patient favoured me with a call to assure me he had not enjoyed such uninterrupted good health for very many years, as within the last twelvemonth; not having been once during that period incommoded by his old complaints.

CASE 77.

Retention of Urine, from Permanent Stricture.

Sept. 22. 1821, a man, aged 51, applied for relief at the Infirmary, having had frequency and difficulty in voiding his urine for the preceding six months; often obliged to pass his water every half hour, he was occasionally unable to void a drop. I directed him ten grains of the compound powder of ipecacuanha every night.

Sept. 25. Symptoms somewhat relieved, medicine continued.

Sept. 29. The smallest-sized bougie passed down to the stricture, at the bulb, would go no further; I therefore thought it right to apply the kali purum.

Oct. 2. His complaints much better. He now passed his water only every two or three hours; medicine continued.

Oct. 9. I found an elastic gum bougie, the diameter of a large crow quill, passed with ease through the stricture into the bladder. The medicine was directed to be continued.

Oct. 13. The passage of the urethra felt sore; but the stream of water was much more free than before.

Oct. 16. I passed the former bougie again through the stricture.

Oct. 27. He now made water with ease and comfort, about every four hours; the medicine was continued.

Nov. 13. He observed that he was now commonly disturbed once or twice after going to bed; but used formerly to be obliged to get up sometimes as often as every ten minutes through the night to pass his water, and then perhaps scarcely able to pass any. He was recommended to continue his medicine some time longer, which he reluctantly promised to do, but I saw no more of him.

CASE 78.

Retention of Urine, from Permanent Stricture.

Sept. 8. 1821. A man, aged 70, applied for relief at the Infirmary. He said that for the last thirty years he had found occasional difficulty in getting rid of his water, sometimes amounting to retention. Bougies and medicines had from time to time afforded some relief. About eleven years since, the frequency and difficulty increased to that degree, that he was sometimes twenty minutes passing a

single spoonful. Frequently also during the night, and even through the day, the urine passed involuntarily. It was always voided in a small stream, and often with excessive difficulty, for which he now requested assistance.

I passed several bougies of elastic gum down to the stricture, the seat of which was the membranous part of the urethra, but could not get beyond the contraction. Bougies were passed twice a week.

Oct. 6. I applied the kali purum, and directed twelve grains of the compound powder of ipecacuanha, to be taken at night.

Oct. 13. An elastic bougie of very fair size was now passed very easily through the stricture into the bladder. Subsequently, however, the contraction partially returned, notwithstanding the repeated introduction of bougies.

Dec. 1. The kali purum was a second time applied.

Dec. 11. I was enabled to pass a plain bougie, nearly the size of a writing quill, without pain, through the stricture into the bladder. According to his own opinion, the caustic had produced far more benefit than had ever been derived from the plain bougie, by rendering the stream of urine much larger, and the intervals of passing it much longer. Soon after its application on *Dec. 1.*, the stream was nearly as large as a goose quill, and only a week before little thicker than a knitting-needle; the interval since had been six hours, before sometimes a quarter of an hour only; formerly the water passed in a divided, now in a united and single stream.

Dec. 15. I passed a full-sized bougie into the bladder, with so much ease and freedom, that the man, from that and other circumstances, perfectly satisfied his complaints were now cured, discontinued his attendance.

Dec. 28. 1822. This man had experienced no return of his complaints.

CASE 79.

Retention, from Permanent Stricture.

AN officer of marines, aged 34, came up to town May 10. 1822, on account of stricture. He told me that in 1813, from retaining his urine too long, he suffered great pain, and lost the power of passing it. By the next morning the spasm had subsided. Soon after ordered to America, he felt uneasy, and applied to his surgeon. A small bougie was passed, and he was told he had a stricture, although the only inconvenience was a constant gleet. He was soon after this put in orders for the Cape of Good Hope, and told by the surgeon his complaint was debility only, was desired to use the cold bath, which, however, induced spasm at the neck of the bladder, with pain, frequency and difficulty in passing water. For these symptoms he took steel with some relief. On the passage to the Cape he had an unusual symptom; a periodical spasm every second morning regularly; on getting out of bed it came on, with frequent desire, pain, distress, and want of power to void his urine, usually continuing three or four hours, then going quietly off. Small bougies occasionally introduced never passed the stricture, and consequently did no good.

In 1816, returned to England, in improved health. He applied to a surgeon in London who passed a bougie the size of a crow quill into the bladder, and ordered him to be cupped on the loins. On his return to Chatham he was placed under the care of his own surgeon, Dr. DOBSON, who very judiciously begun with small, going on progressively to the use of larger-sized bougies, till he came to those of very fair diameter. Thus was he doing well, when under orders for St. Helena, he was so unfortunate as to contract gonorrhœa, which assailed him with great violence. In three weeks, however, by emollient drinks, and lax

bowels, the symptoms abated. He was then seen by the physician of a large naval hospital, who passed a small sound into the bladder, and directed him a saturnine injection, which upon trial he found produce so much increase of pain, that he laid it aside. Going on board the *Conqueror*, he sailed for St. Helena, where he remained two years, exposed to great fatigue, and a very hot climate; during this period the discharge, which continued, was always aggravated by any excess in exercise.

In 1818, returning home, he was again sounded, and an examination made by the rectum, he was told the prostate gland was very much enlarged; and was directed to take medicines, containing the carbonate of potash, and to drink freely and frequently of barley water. These medicines were soon laid aside, and he then took the blue pill regularly for several months. The *kali purum* was once applied to a stricture at four inches; after which, a small sound went on into the bladder. Upon this occasion the prostate was reported to be much reduced in size. A few days after the first application, the caustic bougie was again introduced, and pressed rather forcibly, passed the first stricture, and was pushed so promptly up to the neck of the bladder, that although it was immediately withdrawn, pain and hæmorrhage was the consequence; the same night he had a most violent fit of shivering. As he passed his water very freely, complaining only of the continued gleet, he declined further assistance, and remained comparatively well.

In *June* 1821, an attack of intermittent fever, which obliging him to take a quantity of bark, was followed by a swelling in the perineum; but he still made water tolerably well. The local heat and inflammation was decided, and leeches as well as fomentations were frequently applied. The pain in voiding his urine now became extreme

agony, which he believed arose from the water, at those times, passing into the perineum. His surgeon would have laid open the tumor, but a second opinion being against it, the operation was not performed. At length he thought one of the leech bites ulcerated; for in passing his urine, feeling something run down, he concluded his servant held the vessel awkwardly, but was assured all was right. The next time he voided water, the same thing occurred, and he felt such relief and ease, that he laughed with joy; his servant now saw it spinning out like a thread from the perineum. From this time he improved, and soon became very comfortable. During the spring of 1822, the fistulous opening in the perineum closed, and the urine continued to pass in a very good stream, up to the time of his visiting me, the object of which visit was to determine whether he had better pass bougies or not. I tried in vain to introduce curved elastic bougies; they stopped at five inches and a half, and without force would not go further. Examined by the rectum, the prostate gland was found rather more full than common, but apparently healthy, the bowel and bladder feeling perfectly natural. An opiate was directed, and two days after a second attempt to pass bougies failed.

Upon consideration, and particularly seeing him a few minutes after the instruments had been tried, void with ease near a pint of healthy urine, in a very good stream, I concluded that some false passage existed; and told him that under all the circumstances of the case, especially considering the steady freedom in passing his water, I thought it much better to postpone at least the use of any instruments. With this opinion he left town. He was directed some medicines, for the improvement of his general health; from which medicines, he subsequently acquainted me by letter, he had derived benefit.

CASE 80.

Retention of Urine, from Permanent Stricture ; produced by injecting for Gonorrhœa.

A MAN, aged 32, contracted gonorrhœa in 1806, for which he was ordered an astringent injection, and the pil. hydrarg. He threw up the injection as directed, and immediately felt great uneasiness at the neck of the bladder, with frequency of desire to pass water. In a few hours repeating the injection, the irritation became so extreme as to prevent his remaining five minutes together in bed through the whole night. The straining incessant, and the whole canal so loaded, that he voided little water, but more blood.

The next day he was told what he had felt was of no consequence ; he had only to dilute the injection with water, and go on. He therefore continued, and in two months, the heat and other symptoms, with the exception of the frequency in passing water and the discharge, had subsided. The pills he took for three months, for part of which time his mouth was affected.

After laying aside his remedies, the discharge continued about eight months, when he first perceived a lessening in the stream of urine. For this a bougie was several times passed ; and he felt somewhat relieved.

Oct. 1814. He had a bougie passed every day. The parts, however, being irritable, a swelling appeared in the perineum. Its increase slow, and pain trifling, he did not mention it till it had existed two months ; when, from its becoming extremely hot and painful, the bougie was laid aside, and he was ordered to rub some mercurial ointment upon it every night. This treatment was continued a month, when his mouth became sore ; and retention of urine suddenly came on. He was now directed the warm bath, with leeches, fomentations,

and an opiate glyster. The following evening a small elastic catheter introduced, the water was drawn off.

In a few weeks the tumor had decreased, and his health improved. In two months he was well enough to leave home, and return to work; the stream of urine larger, but some remaining swelling in the perineum.

March 1815. Finding the tumor again increasing in the perineum, he came to London for advice, and was admitted into the Infirmary. The inflammation was not only acute, but there was increased difficulty and pain in getting rid of his water. Poultices and fomentations had not in eight weeks brought it materially forward. They were therefore laid aside; by cold applications with leeches, he became easier.

After several unsuccessful attempts to introduce bougies and catheters, I succeeded, *June 6th*, in getting a small silver catheter nearly through the obstructions, but could by no means reach the cavity of the bladder. This circumstance added to what I had observed in other examinations, confirmed the opinion repeatedly given him, that some false passage certainly existed, by which the point of the instrument was caught, and prevented passing the right way. Fortunately the operation was not one essential to his safety, as he was perfectly able to get rid of his water, although not without occasional difficulty.

Soon after this he left the house, and went into an hospital. The surgeon who there attended him, subsequently acquainted me he believed there were false passages; for that in the course of three months he had made no progress with bougies; that now and then an instrument had been got into the bladder, but that the attempts most frequently failed; and that the tumor in perineo had suppurated, leaving a fistulous opening, through which urine passed.

CASE 81.

Retention, from Permanent Stricture.

IN *April* 1819, a man, aged 41, requested my assistance, on account of difficulty in passing his water. He said he had contracted a gonorrhoea, in 1796, with the usual symptoms; he passed his water every half hour. During the continuance of inflammation, he was directed to use a saturnine injection, which only produced intense pain. After three weeks' fruitless perseverance the injection was laid aside, and little else done. Occasionally exposed to the chance, he knew not whether he contracted any new infection, but the symptoms continued eighteen months, when an accident gave a new turn to his complaints. He experienced a sudden and severe pain in the line of the corpus spongiosum urethra, during the turgescence of the parts (in coitu). Considerable bleeding from the urethra followed, and continued most of the night. This led him to believe that something in that part (about two inches and a half along the canal) had given way, because the penis when turgid was previously always drawn downwards, but had now lost this incurvation. The next morning he could not void his urine; by medicines, however, he was just enabled with straining, to get rid of it. Three weeks after, in much pain, he attempted to pass a polished iron wire, which he succeeded in introducing through the obstructed part; on withdrawing it, the urine followed in a stream. He now was enabled to pass a very small bougie, but the irritation and discharge still continued.

In 1799, a surgeon passed a bougie, which stopped at the old spot, the seat of the accident; the lunar caustic was also several times applied, without effect; it was therefore laid aside, and he contented himself with occasionally passing a small bougie.

In 1807, he applied to a well-known empiric,

who amused him by various expedients and experiments, some extremely painful; in six months under his care he drained his pecuniary resources, but passed no instrument into his bladder. He now again succeeded in passing a very small bougie of his own, but violent inflammation in one of his testicles obliged him to see a surgeon, from whom he obtained relief, but on a relapse he went into an hospital. Every fourth day for six weeks caustic was now applied, and a small bougie as often as he made water. At the end of this period the house surgeon, in endeavouring to pass a larger bougie, broke through the urethra into the scrotum; this he felt so distinctly at the time, that to avoid a recurrence of the accident he left the hospital the same evening. An hour after the bougie had been introduced he tried, but could not void his urine forward, but felt it pass into the scrotum, his bladder being relieved. On leaving the hospital he went about nearly three weeks with the scrotum swelled and very painful; although by the assistance of a small bougie he was enabled to void occasionally a little urine forward.

He then applied to a surgeon, who passed some catgut bougies for him. About a month after leaving the hospital that part of the scrotum into which it appeared to him the bougie had been pushed, felt as if gathering. Upon this he went into an infirmary, where the tumor was fomented; and in a few days an opening was made, and much blood and offensive matter let out. A poultice was applied, and an opiate given, he slept well, and on waking passed some water, which flowed entirely through the wound. He occasionally passed a catgut bougie, often had difficulty in reaching the bladder, but could feel when the instrument was going wrong, and by persevering generally found the right way. In two months the external wound healed, and the water passed entirely by the urethra.

There was no return of retention for a year and a half, when from neglecting to pass bougies the difficulty increased, and in straining violently the water, instead of passing forward, burst through into the rectum, upon which he felt the bladder instantly relieved, the urine escaping by the anus. He had at this time no frequency in passing the water, but again had recourse to bougies; an abscess that formed in the perineum, to which he applied leeches, broke into the urethra, discharging freely by the penis.

The water after passing seven weeks by the rectum came again through the urethra, and the opening into the bowel closed; but in voiding his urine some always seemed to remain behind, exciting a burning heat in the seat of the abscess. This uneasiness sometimes continued an hour, but in exercise it soon drained off by the urethra, and he then became easy.

From this time his strictures remained very manageable, till he applied to me in 1819. The first and closest stricture I found at two inches and a half from the orifice. This by a few weeks' perseverance in the use of the elastic gum bougie was considerably dilated, when the second was found at six inches, which, however, did not long prevent a middling-sized bougie passing into the bladder. He so well understood the manner of passing a bougie, that cautioning him occasionally to introduce an instrument carefully, he discontinued calling on me.

CASE 82.

Retention, from Permanent Stricture.

Jan. 11. 1820. A man, aged 43, requested my assistance for stricture in the urethra. He had first suffered temporary retention six years before, from great fatigue. It appeared on enquiry that fifteen years back he had used injections for gonorrhœa, during the inflammatory stage. For the last

few years the stream of urine had diminished, with uneasiness, pain, and difficulty in voiding it, and occasionally with a purulent discharge from the urethra. Passing small bougies gave some relief; but inflammation coming on in the perineum, bougies were laid aside; the irritable urethra again contracted, and the urine now passed with more difficulty than ever.

On his first application to me, his complaints were much relieved by aperient and anodyne medicines, and he could not at this time be persuaded to allow the passing of a bougie.

July 16. The smallest-sized bougie of elastic gum was introduced, and stopped at five inches; it was for a few minutes allowed to remain, and then removed; after which he thought he passed his urine more freely. Bougies, at short intervals, were repeatedly passed till *Oct. 7.*, when, as a contraction one inch and a half from the orifice prevented a larger instrument being used, the kali purum was applied to the first stricture, for the space of a minute, exciting a sense of heat, but producing very little pain. An anodyne was directed for the evening.

Oct. 13. The stream of urine materially improved; I now passed, with some little check at each point, a bougie three sizes larger than the former, through the first and second strictures, into the bladder. The tendency of this operation, however, was rather temporarily to increase than diminish local irritation. This, however, soon went off, and in a week he made water with much more freedom than he had done for many years before. A bougie of moderate size was now introduced once a week for a month, when the irritation and other symptoms having entirely declined, any further attention became unnecessary.

CASE 83.

Retention, from Permanent Stricture.

Sept. 2. 1819. A poor man, aged 34, was recommended to my care, who seven years before had contracted gonorrhœa, for which he took medicines; and in two months, while the discharge continued, he was again connected; upon which occasion some vessel gave way in the urethra, for he soon perceived he was bleeding from the urethra. Obligated to ride thirteen miles the same evening, he found his stockings and boots almost full of blood. When he got home, the evening of the accident, he passed water, and only felt a degree of smarting pain extending two or three inches from the orifice of the canal. The next morning the bleeding had ceased; and by taking medicine all discharge, within the following six weeks, subsided.

He remained well, or had only an occasional sense of pain in passing water, though often exposed to the chance of infection, till 1817, when he thought he had cold, with pains in his limbs, sore throat, and breaking out upon his face. For these complaints he was under treatment from *Sept. to Dec.* About this time he first observed that if he drank rather freely, his water passed from him during sleep; and that whenever he lifted a heavy weight, or otherwise strained himself, it passed involuntarily.

Sept. 1818. Employed in carrying corn into a granary in hot weather, he perspired excessively, and taking cold suddenly lost the power of passing water at all; by rest, a warm bed, and drinking diluent liquids, he was in 24 hours enabled to void a little urine, though with difficulty.

July 1819. While in the country, hard at work, mowing, and drinking stale small-beer, he was seized with severe pain across the back and loins, with urgent desire and total want of power to void his urine. The retention, by rest and care,

again gave way, and in about 24 hours, with perpetual straining, he was enabled to pass a little water. In this attack he also took medicines, which assisted in relieving him. The urine voided in small quantities, was thick and offensive, with whitish-coloured fragments of gravel, that remained about the orifice, gave sharp cutting pain in passing, and felt between the fingers like sand. To these symptoms he had remained more or less subject ever since.

His complaints, when he first applied to me, were of difficulty and frequency in voiding his urine. An elastic bougie the size of a knitting needle was with difficulty made to pass a stricture two inches and a half from the orifice of the urethra.

Sept. 14. 1819. The kali purum was applied; it gave much pain, but no relief.

Sept. 18. The application of the caustic was repeated, and produced less pain.

Sept. 20. The water now^e passed in larger quantities, with more freedom and less frequency than before.

Sept. 28. I was able to pass a middling-sized bougie clear through the first stricture, on to the second, situated in the bulb of the urethra. His complaints were now, however, so much relieved, that he discontinued his calls, and I saw no more of him.

Dec. 26. Finding his old complaints returning, he called upon me. I passed the smallest-sized bougie, which stopped at two inches. Desirous to allay local irritation, I directed him some anodyne medicines, which, however, he repeatedly neglected to take.

Jan. 8. 1820. With increased heat, pain, and difficulty in making water, a considerable hard tumor, painful to the touch, now formed in the line of the urethra, extending forward from the scrotum to the seat of the stricture. Leeches and fomentations gave some relief.

Jan. 14. Leeches again applied with benefit. He was desired to repeat the application of leeches, if necessary, but this he neglected; in consequence of which, in a few days, the swelling again increased, and on its surface appeared a small scale, which partially separating, an opening was the consequence, through which part of the urine flowed.

Feb. 6. I again applied the kali purum, which enabled him very soon to pass nearly the whole of the urine the right way; the fistulous tumor subsiding.

March 8. By continuing the above plan of treatment the stricture near the orifice, always the most troublesome of the two, was much relieved; he passed the whole of his urine the right way, his health so essentially improved, that he felt entirely released from apprehension of a relapse, and left London.

CASE 84.

Retention of Urine, from Permanent Stricture.

A MAN, aged 68, requested me to see him on account of stricture in the urethra, in *July* 1818. He said he had always worked hard, and generally had good health. He said, the first retention of urine occurred thirty years back, from long exposure to rain and wind, while perspiring violently. By rest and medicine it was removed. This kind of attack occasionally returned, but never for any continuance.

In 1816, he generally passed his water every three or four hours, complaining much of heat in the parts. Bougies were introduced, but without much advantage.

In 1818, I passed some bougies for him, and once applied the kali purum; but as his complaints were not at once removed, he had nothing more done.

In 1819, the water rarely passing in a stream,

was more frequently voided, with spasm and straining, by drops. I repeatedly introduced bougies, affording him some alleviation. The urine, generally turbid, deposited either a sediment of white powder, or a very tenacious muco-purulent matter.

Oct. 9. I endeavoured to pass a bougie into the bladder, but could get no further than the membranous part of the urethra. By the compound powder of ipecacuanha, however, he was so much relieved, that he found it unnecessary to continue his visits.

Dec. 26. 1820. The stricture was again troublesome. He voided his urine with increased difficulty, but with less pain in the loins, than formerly. The urine, abundant in quantity, was, from severe straining, tinged with blood. As, however, he declined the use of bougies, I directed him some opiate medicines, by which he was relieved.

May 2. 1822. He was under medical treatment for a typhus fever. The secretion from the kidneys was now very scanty, the urine being generally loaded with a yellowish purulent matter. The straining and difficulty were still considerable, but he declined the use of those means by which he might probably have been relieved.

May 18. I heard accidentally of his death, which had recently taken place; and fortunately obtained leave to examine the body. The kidneys were sound, but within the cavities of that upon the left side was some appearance of purulent matter, mixed with the urine. Between the mucous membrane lining the infundibula, and the adjacent substance of each kidney, was a thin layer of fat; the first time I had ever seen adipose matter deposited in this situation.

The urethra, laid open, was spacious and free to the membranous part, where it had been contracted, partly from permanent stricture, principally by spasm. The cellular membrane surrounding the canal at this part, condensed and diseased, had

formed an abscess nearly the size of a walnut; it was full of thick pus, but had not yet burst into the urethra, though probably it very soon would. The prostate gland was sound. A narrow circle upon the internal margin of the prostatal part of the urethra was loaded with small vessels, but the internal surface of the bladder was not in a state of extreme irritability, although its cavity much contracted, its substance was consequently thickened.

Two false passages were found on the anterior surface of the neck of the bladder, a quarter of an inch in extent; where a small bougie appeared to have passed along behind the mucous membrane lining that part of the bladder.

Within the rectum, surrounding the upper margin of the sphincter, were several soft tumors, from enlarged and varicose veins.

CASE 85.

Retention of Urine, from Permanent Stricture.

August 3. 1816. I examined the body of a man, aged 52, long troubled with stricture in the urethra, first produced (23 years before) by injecting for gonorrhœa. He suffered great distress and difficulty in voiding his urine. He had repeatedly had complete retention, and occasionally the other symptoms usually attendant upon stricture. These complaints were commonly relieved by diaphoretics, opiates, and rest. The urine latterly was purulent, opake, almost gelatinous, and highly offensive. About two years before his death, a surgeon had several times applied the kali purum to the stricture, but with little effect, his complaints continuing to prove an endless source of torment.

On opening the body, I found the bladder enlarged and thickened, the muscular coat being on its internal surface beautifully and extensively fasciculated. The ureters enlarged, and internally very vascular. Between the openings of the ureters a

small pouch had formed, communicating with the bladder.

In the bulb of the urethra was a narrow stricture, almost impervious. The inner membrane at the contracted part was delicately thin, but the corpus spongiosum urethræ surrounding it very dense and compact. Immediately before and below the stricture, was a false passage for a quarter of an inch, into which any instrument introduced must necessarily have slipped, in spite of every endeavour to avoid it. The strictured part of the urethra and the parts immediately surrounding it, exhibited a diffused stain of a dull, greyish-green tinge, perhaps from the repeated applications of the caustic alkali. Towards the external orifice of the urethra, the canal was contracted precisely in the manner described as arising from injecting for gonorrhœa. (613.)

CASE 86.

Retention of Urine, from Permanent Stricture.

June 28. 1821. I examined the body of a poor man, a sailor, aged 57 years, who had about a week before been admitted into the Infirmary; bowed down by many years of unremitting pain, varied affliction, constant irritation, and the excessive use of opium.

He had for many years had stricture in the urethra, and occasionally retention of urine, and had been repeatedly under my care, sometimes relieved by bougies, most frequently by medicines, particularly the compound powder of ipecacuanha.

While in the house, he seldom spoke, his mental powers being so reduced by his habit of chewing opium, that he was scarcely capable of giving a rational answer. The usual symptoms of stricture, however, were still present; frequent straining to pass water, by which he was disturbed five or six times a day, but seldom during the night. The urine much loaded with a thick, yellowish, albumi-

nous matter, during the last week of his life, contained small coagula of blood. The smallest bougie would not pass into the bladder, medicines were therefore directed, though unsuccessfully.

On examination after death, I found the urinary bladder moderately contracted, its outer surface more vascular than common. The prostate gland healthy. The bladder removed and laid open, was found to contain about two ounces of albuminous and purulent urine, with small shreds of lymph; and as it flowed out, towards the bottom were observed several minute coagula of blood; and though the inner membrane of the bladder was not crowded with vessels, it exhibited several small coagula of blood still adhering to the points where the capillary arteries were ruptured.

The state of the bladder by no means explained that of the urine, suggesting the necessity for seeing the kidneys. The ureters, particularly the left, were enlarged, thickened, vascular, dark-coloured, and filled with a fluid similar to that in the bladder. The pelvis and infundibula of the left kidney contained a purulent urine, with shreds of lymph effused, but not yet poured out from the recesses of the kidney. The membrane lining these cavities was scattered with minute clusters of convoluted and varicose vessels, as the consequence of irritation. A section of the cortical part exhibited the red vessels here and there larger and more obvious than they are generally met with.

The stricture seated in the bulb of the urethra, was so closely contracted, that it with difficulty admitted a common-sized bristle. It was firm, and of a cartilaginous texture; its former stage of comparative relaxation was demonstrated by the prostatic part of the urethra still exhibiting numerous depressions, the effect of unsuccessful attempts to pass bougies into the bladder.

CASE 87.

Retention, from Permanent Stricture, with Irritable and Diseased Bladder.

A LABOURING man, for fifteen years previous to his death, had been troubled with stricture in the urethra, brought on at first by virulent gonorrhœa. From that period the medical gentlemen who attended had occasionally been called in, to relieve him from retention of urine. This for the most part was readily accomplished by the introduction of a small-sized common bougie, but latterly the stricture had become so contracted as barely to admit the smallest catgut bougie that could be procured.

On these occasions, the instrument was usually suffered to remain some little time, and upon withdrawing it, the urine generally followed. These attacks were commonly the result of intoxication.

For some time previous to his death, he complained of much pain and difficulty in passing his urine; the attempt was often followed by a few drops of blood, and a purulent discharge. At length the desire to pass water proved a constant source of distress, while the urine was voided guttatim, or in very small quantities.

When visited in his last attack every effort was made to relieve him by the means formerly adopted, but the bougie not succeeding, he was put into the warm bath, in which he voided urine in small quantity, but in great pain, to relieve which opiates were administered.

The following day the urethra gave way, a quantity of urine escaped into the cellular membrane; the perineum sloughed, the urine escaped by the opening, and a very few days afterward he expired.

On examination, the bladder was much thickened, but so little contracted, that it still contained near a pint of urine. Removed and laid open, the inner

surface of the bladder was found much altered from disease. The inner membrane had apparently suffered repeated attacks of violent inflammation. On some points the natural surface of the membrane was still visible, of the brightest scarlet colour, from extreme excitement. On other parts extensive masses of effused coagulable lymph was covered with a reddish-brown coat of adherent calculous matter; a change which had taken place most considerably about the fundus of the bladder, at its neck, and in the commencement of the urethra.

The prostatal and membranous parts of the canal were much enlarged from the pressure of the urine, as far forward as the stricture, which was situated at the bulb of the urethra. The stricture itself was nearly impervious, and of a very compact texture, though of no considerable extent.

Where the cavity of the urethra had suffered inflammation and distention behind the stricture, coagulable lymph had been effused, upon which the particles of red gravel had become adherent through the whole extent of the surface.

The fistulous orifice, where the urethra had burst, was directly behind the strictured part of the canal. The prostate gland, considerably enlarged, had an extensive abscess formed within its substance.

For the opportunity of examining by dissection the above disease, and also for the particulars of the case, I am indebted to the kindness of Dr. HOOPER, in whose valuable collection the parts are preserved.*

CASE 88.

Retention of Urine, and Irritable Bladder, with Fistula; from Permanent Stricture.

A MIDDLE-AGED gentleman had many years laboured under strictures in the urethra, producing abscesses and fistulæ in perineo, with occasional

* PLATE III. Fig. 5.

irritability of bladder; all consequent to injecting for gonorrhœa. In *May* 1813, when he consulted me, the urine principally passed by two fistulous openings in the perineum; and a fresh abscess was forming behind the scrotum. He was obliged to pass his water with extreme pain, every quarter of an hour. For many years, he occasionally passed one of the smallest-sized silver catheters into the bladder, deriving temporary relief by drawing off the water. At the present time, the smallest bougie would not pass further than half an inch down the canal.

Fomentations, poultices, and opiates, were first directed. The abscess in a few days broke, and suppurated freely; and in a week, the irritability was so far relieved, as to admit some attention to the urethra. The stricture near the orifice was so firm, and so irritable, that after repeated trials, the smallest-sized bougie only would pass; and even this never failed to produce extreme pain and irritation in the urethra, bladder, and perineum.

Requested to proceed with decision, I proposed the application of the lunar caustic, and the next day passed an armed bougie, sufficiently large in size, that the same treatment might be carried forward to the more internal parts of the canal, if necessary. The common bougie, pressed against the stricture, excited pain almost intolerable. The armed bougie pressed to the stricture with the same degree of force, gave much less distress. It was retained a minute, and withdrawn. The same application repeated every third day for weeks, made little progress, but the irritation continued to decline. The application of the caustic was, in fact, so much less painful than the common bougie, that my patient told me, if I only considered it right to use the caustic, without previously passing the unarmed bougie, he was sure the pain of the operation would be trifling.

At the end of this period, the stricture gave way,

and the bougie passed on to six inches and a half, where it again stopped. One a size smaller, however, went on with little hesitation, into the bladder. The common bougie was now passed every second day for a month, and succeeded in preserving the relaxed state of the urethra. A much larger proportion of water now flowed off by the urethra, at much longer intervals, and with infinitely less pain. He was therefore recommended to pass a bougie about once in every fortnight, and I took my leave.

January 7. 1816. A bougie of elastic gum was passed, and allowed to remain in when he went to bed. In a few hours he awoke in great uneasiness, and found the bougie had so nearly escaped into the bladder, that with the greatest difficulty he at last succeeded in pressing back the glans penis far enough to enable him to take hold of the end of the instrument in the orifice of the urethra, so as to withdraw it.

A most severe attack of irritation in the bladder was the consequence of this accident. The pain, and frequency in passing water was excessive; and frequently notwithstanding the utmost efforts, he was unable to expel the urine. For a few days the water contained little mucus, although numerous small shreds of coagulable lymph, passing by the urethra, occasionally impeded the flow of urine. By degrees, the quantity of heavy sediment increased, that of the lighter flocculi diminishing. The mucous deposit became of so thick a consistence, that the urine passed with more difficulty than ever.

The quantity of opake white sediment now increased, and standing for some hours, numerous filaments several inches long, floated up in the urine; these, like the rest of the filamentous appearances, were connected with the general mass of sediment, adherent to the bottom of the vessel. Some of these tenacious filaments formed in the bladder, occasioned incalculable distress and straining, from their obstructing the passage of the urine.

He was directed to take the simplest and least stimulating diet, with only barley water. The compound powder of ipecacuanha, formerly very useful, now failed to relieve; and he continued to be disturbed every five minutes, night and day.

Jan. 10. Sixty or eighty drops of the tincture of opium, were directed to be taken every night at bedtime.

Feb. 13. The laudanum regularly continued, had neither procured sleep, nor alleviated a single symptom. It was laid aside, and instead of it, the carbonic acid in soda water, was directed. He was also allowed to take porter, but not wine. In two days, the symptoms began to abate; in a few days more, the appearance of the deposit in the urine was decidedly altered, and with less tendency to coagulate firmly, and less tenacity, there was more of a purulent appearance. This change alone was essential relief, as in the one state the excreted matter blocked up the passage, in the other it did not.

Feb. 15. Some little bits of a reddish-coloured gravel made their appearance, sometimes giving pain in passing the urethra. Formerly, he had been very subject to gravel, but of late years had seen nothing of the kind.

Feb. 18. He was directed to take ten drops of muriatic acid, in some water, twice a day; in the intervals of drinking the soda water.

Feb. 25. He was in every respect much better. The sediment in the urine was now much diminished, and its appearance that of a transparent weak jelly, rather than an opaque albuminous matter. The gravel having disappeared, the soda water was continued alone, the acid being laid aside.

Feb. 27. Able to sleep at night for two hours together, and in all other respects as well as before the escape of the bougie into the bladder. It was now determined to try the effect of gradual distention, with a view to improve the power of retention.

By an elastic gum catheter, two ounces of warm water were injected into the bladder. It immediately produced much uneasiness and pain in the small of the back, the volume of fluid exceeding what the cavity was accustomed to, excited sharp spasmodic pains in the bladder, and it was considered prudent to allow it to run off in five minutes.

The pain from this experiment soon subsided, but by the next day, the irritability of the parts was so much increased as to have nearly brought back the symptoms to their worst state; so that although by LE DRAN, and some others, the operation has been recommended, I shall in future be slow in proposing it.

Towards the middle of *March*, he again improved, still continuing the soda water; and on the 27th of the following month, he called and acquainted me that he was scarcely ever disturbed more than once in the night, passing his water freely, with little uneasiness, and no gravel. The urine had for many weeks all flowed by the urethra; the fistulous openings in the perineum having perfectly healed he was consequently no longer subject to the distressing inconvenience of his linen being always wet and offensive.

March 1822. Occasionally subject to temporary inconvenience from the stricture, this gentleman's general health was exceedingly good; the whole of the urine continuing to pass, generally with freedom, by the urethra.

CASE 89.

Retention, from Permanent Stricture.

A TALL athletic man, long subject to stricture, was admitted into the Infirmary, *June* 6. 1821. His symptoms were irritation at the neck of the bladder, with constant desire to pass water, and great difficulty in voiding it. On introducing a small elastic bougie, a firm contraction was found at six inches

and a half. He was directed an anodyne night and morning, with a warm bath at noon. These means somewhat relieved the difficulty in passing his urine; but he sunk and died on the third day after his admission.

I removed the contracted bladder, with a very enlarged prostate gland; together with the penis. The consolidation of the cellular membrane surrounding the prostate gland, was extensive and considerable, as if much inflammation had once existed. On cutting into the bladder, the inner surface was excessively high-coloured, apparently from effusion into the cellular texture, behind the mucous membrane; not from vascularity of surface. There was about a table-spoonful of foetid purulent urine in its cavity, with loose shreds of coagulable lymph; and towards the neck of the bladder, and in the prostatal part of the urethra, were numerous filaments of the same substance, adherent to the surface of the canal, behind the stricture. As the smallest probe could not be made to pass through the stricture, the parts were laid open by cutting upon the probe introduced from the bladder; when the contracted portion at the bulb, was found extensively cartilaginous.

The prostate gland, eight times its natural size, was converted into a large abscess, containing cells filled with a foetid greenish pus.

The left spermatic cord was much enlarged, appearing to be ecchymosed. The left testicle also, at first sight, was apparently diseased; but the epididymis only was enlarged, the glandular part of the testicle being sound. The epididymis cut into, was ecchymosed, and had somewhat the appearance of bruised flesh, exhibiting many enlarged and tortuous vessels; some of which, large as crow quills, appeared to be veins. This state of parts had probably been the consequence of some bruise received upon the groin, producing effusion into the cellular texture of the spermatic cord and epi-

didymis, the vessels of which, might previously have been in a varicose state. *

The kidneys, and other abdominal viscera, were sound.

CASE 90.

Retention, from Permanent Stricture.

J. L. aged 71, applied to me on account of stricture in the urethra, in *June* 1816. He stated that fifteen years before, he had for the cure of a violent gonorrhœa used an injection, by which the symptoms were much aggravated; one of the testicles inflamed, formed abscess, and by the usual treatment broke, and in three months healed. In the course of this period, the gonorrhœa left him; the only remaining inconvenience being a frequency in passing water.

Several years after, the stream of urine lessened, and an uneasiness in voiding it increased; till scarcely able to pass it at all, he suddenly lost the power of retention. The urine now dropped away from him night and day, with distressing pain at the loins, constantly over-loaded bladder, and unceasing pain and irritation in the urethra. Anxious for relief, he applied at an hospital; bougies failing, a small catheter was passed, and three pints of urine drawn off. Subsequently, the application of caustic was repeatedly made, first to a stricture at four inches and a half, then to one at five, and lastly to one situated at the bulb of the urethra; this treatment occupying in the whole, the space of nine months, when he again made water freely and slept the night through.

About a year after this, the symptoms having partly returned, he was taken into St. Bartholomew's hospital, where, subjected to the usual routine, medical and surgical, the strictures were again overcome, and in six months he was sent out. He now enjoyed tolerable health for some years; but

* The disease is preserved in Mr. HEAVISIDE's Museum.

in 1814, suffered so much from his complaints, that he entreated to be relieved, and was again taken into an hospital. Caustic, bougies and sounds were used, but often without being made to pass.

In *October*, a steel sound was passed in with force, to overcome the resistance, which gave way, and the instrument went forward, when to his surprise, the surgeon found the point of the instrument at the left groin, where the assistant, and also the patient himself, felt it directly under the skin. It was immediately withdrawn, and some bleeding from the urethra followed. The next day, he had severe pain at the loins; and in the left testicle, swelling and inflammation. He did not observe blood in his stools, but knew that the urine now got into the bowel, because when he made an effort, it flowed out by the anus, without any escaping by the urethra. The testicle fomented and poulticed for ten weeks, formed an abscess, was opened, and in three months healed. During near five months, the urine continued to pass by the bowel, escaping involuntarily, or passing off with watery stools.

About four months after the accident, instruments were again tried, after using warm baths, and other medical means. A small catheter was with great difficulty got into the bladder, where it was allowed to remain five days. The natural passage again restored, the opening into the bowel healed, and he voided his urine in a small stream by the urethra. His health, however, by degrees gave way; and although well enough to leave the hospital, he was from this time much harassed by increased frequency in passing his water, and violent attacks of shivering, with fever.

During the time he was under my care, I occasionally succeeded in passing a plain bougie, of small size, through the stricture at the bulb; and always to his relief. In *June* 1817, he had for some time complained of a sense of swelling within

the bowel. I examined the rectum, but could feel no defined tumor of the prostate gland; the coats of the intestine, however, next the bladder, felt extensively indurated, diseased, and in parts, apparently in a fungated state. The examination gave him extreme distress. Soothing and anodyne medicines and injections, served to give him comfort and ease. Notwithstanding which, he continued to decline, and in *October* died; exhausted by the continued irritation of disease.

With much difficulty I obtained permission to make a partial examination; and found the bladder contracted and irritable, but not ulcerated. In the bulb of the urethra, was a closely contracted cartilaginous stricture, one-eighth of an inch in breadth, round which the spongy texture of the urethra was obliterated. Just beyond the stricture the surface of the urethra had a fimbriated appearance, as if from small flocculi of effused lymph. Anterior to the stricture, not the least deviation from a healthy state was observed; but beyond it were several false passages of different depths, which had almost separated the urethra from the parts beneath.

The mucous membrane of the rectum was thickened, and extensively affected with irritative, ulcerative action. Several small abscesses in perineo, connected with the false passage through the substance of the prostate gland, and communicating with the bowel, were also found in the indurated and diseased cellular membrane, beneath and behind the bladder.

SECT. XX.

Retention of Urine, within the Prepuce.

649. It was not my intention to mention this among the causes of retention of urine, although aware that in early youth, constriction of the prepuce is a very common occurrence, and at the

same time not unconscious that M. DESAULT held it of sufficient consequence to be so entitled.

650. In one instance, however, I have very lately seen all the very distressing symptoms usually consequent to retention, produced by a stricture in the prepuce; and in this case finding but a confined opening in the prepuce, felt disposed from the clearness of the symptoms, to give credit for the existence of stricture in the urethra; and consequently advised the patient of the necessity for his having the prepuce laid open, as a previous step to the subsequent examination and treatment of whatever obstruction might be afterward found in the urethra. The operation, however, trifling as it appeared, soon cleared up the true nature of the case, and the full importance of what had been done, to our mutual satisfaction.

CASE 91.

Of Retention of Urine, from Phymosis.

A STOUT coach-smith, aged 32, had been from infancy subject to difficulty in passing water, produced, as he believed, by a contraction in the orifice of the prepuce. On examination, Nov. 23. 1822, it was so closely drawn, as with very great difficulty to admit the blunt end of a dressing probe; and when in, there was just the same difficulty in withdrawing it. Sometimes he was prevented voiding any water, but by drops with great straining; at others it passed in a thread stream. The prepuce relaxed, and apparently enlarged by distention, argued the truth of his account. For the last fifteen years he had been subject to red gravel, with fits of pain at the loins, inability to raise himself up when stooping, and the other usually attendant symptoms. I first passed a pointed bistoury into the opening of the prepuce, bringing it out again very near the opening, so as to enable me to enter a director; upon which instrument the bistoury

was conducted, and the division of the prepuce completed. The same evening I was sent for in great haste, the bleeding had continued for ten hours, he had lost a great deal of blood, and was rather faint; with some difficulty I found and secured the artery, which still occasionally threw forth its blood in a jet.

March 1823. He called and stated that the operation had removed the whole of his complaints; having from that day experienced no return whatever of any one symptom.

SECT. XXI.

On the Puncture of the Bladder.

651. WHEN either from stricture or other disease, the bladder is absolutely prevented from evacuating its contents by the urethra, it becomes essential to the life of the patient, that the urine be enabled to escape by some other channel; which must be provided either by nature or art. Where this provision is of the first kind, it is formed by those fistulous openings from the bladder, the nature of which has been already explained; where of the second, it consists in the puncture of the bladder; an operation that has been variously performed, but in all cases with one and the same object, that of relieving the bladder from its load, and preventing its bursting from accumulation of urine.

652. The puncture of the bladder has been proposed to be made in one of three ways, either by passing in a trocar through the abdominal parietes above the pubes, or by introducing the same instrument into the bladder by the perineum, or lastly by puncturing the bladder through the rectum.

653. The operation has been successfully performed in each of these situations, but as the puncture from the rectum is in most cases very convenient, and in my opinion an exceedingly safe operation, I generally have preferred it to either of the

other modes ; although where retention is consequent to disease, with much enlargement of the prostate gland, the puncture is more conveniently made above the pubes, in the manner explained. (Case 62.)

654. In puncturing the bladder from the rectum, the trocar need not be much larger than that employed for hydrocele ; although it must be twice the length, and should have a gentle even curvature. The form of the instrument, with the exception of its curve, should be that of the common trocar, with a triangular point ; for the reasons already given. (57.)

655. As to the position of the patient, it is not exceedingly material ; the operation may be conveniently enough performed, as he lies in bed. The fore-finger, well oiled, is to be first passed up into the rectum, and the degree of fulness of the bladder, as well as the most convenient point above the prostate gland, ascertained. When these circumstances are satisfactorily made out, the trocar pushed nearly, but not quite through the canula, is to be gently introduced through the sphincter of the anus, and passed up until the extremity of the canula corresponding in situation with the point of the finger already in the rectum, is felt to be against the part where the puncture is to take place. The canula being in the least degree retracted, while the stilet is pressed forward, places the instrument at once in a fit state for effecting the puncture ; keeping in view the line of direction tending to the centre of the distended bladder, the trocar is now to be steadily passed forward through the coats of the intestine and bladder, when the stilet being carefully withdrawn, the canula must be retained, and the urine allowed to flow off.

656. As the accidental slipping of the canula out of the orifice in the bladder, has been productive of inconvenience from the premature healing of the wound, and the consequent necessity for repeating

the puncture, it is desirable to have a little plate attached to the external part of the canula, perforated with holes, so as to admit of its being secured to a bandage, passing round the waist and between the thighs. This precaution, however, generally becomes unnecessary after the first week or two, as the opening usually very soon loses its disposition to heal, until the restoration of the natural passage for the urine renders it useless.



Fig. 1.

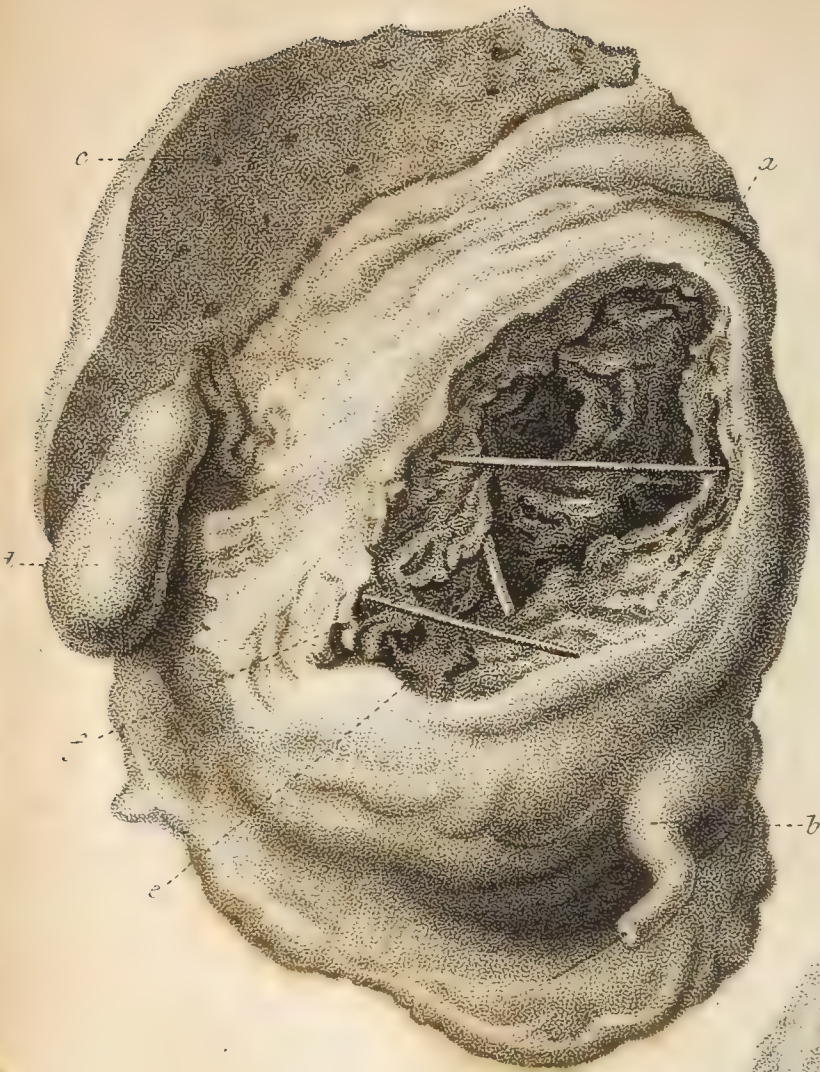


Fig. 3.

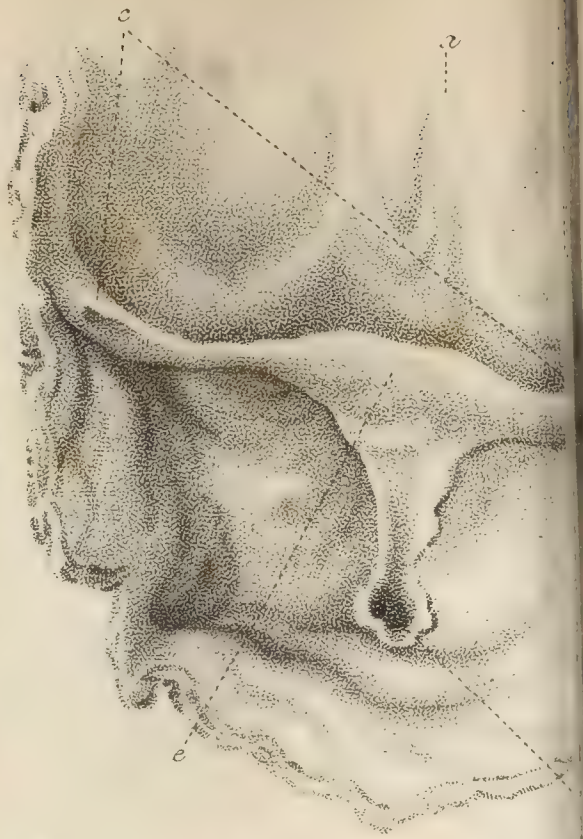
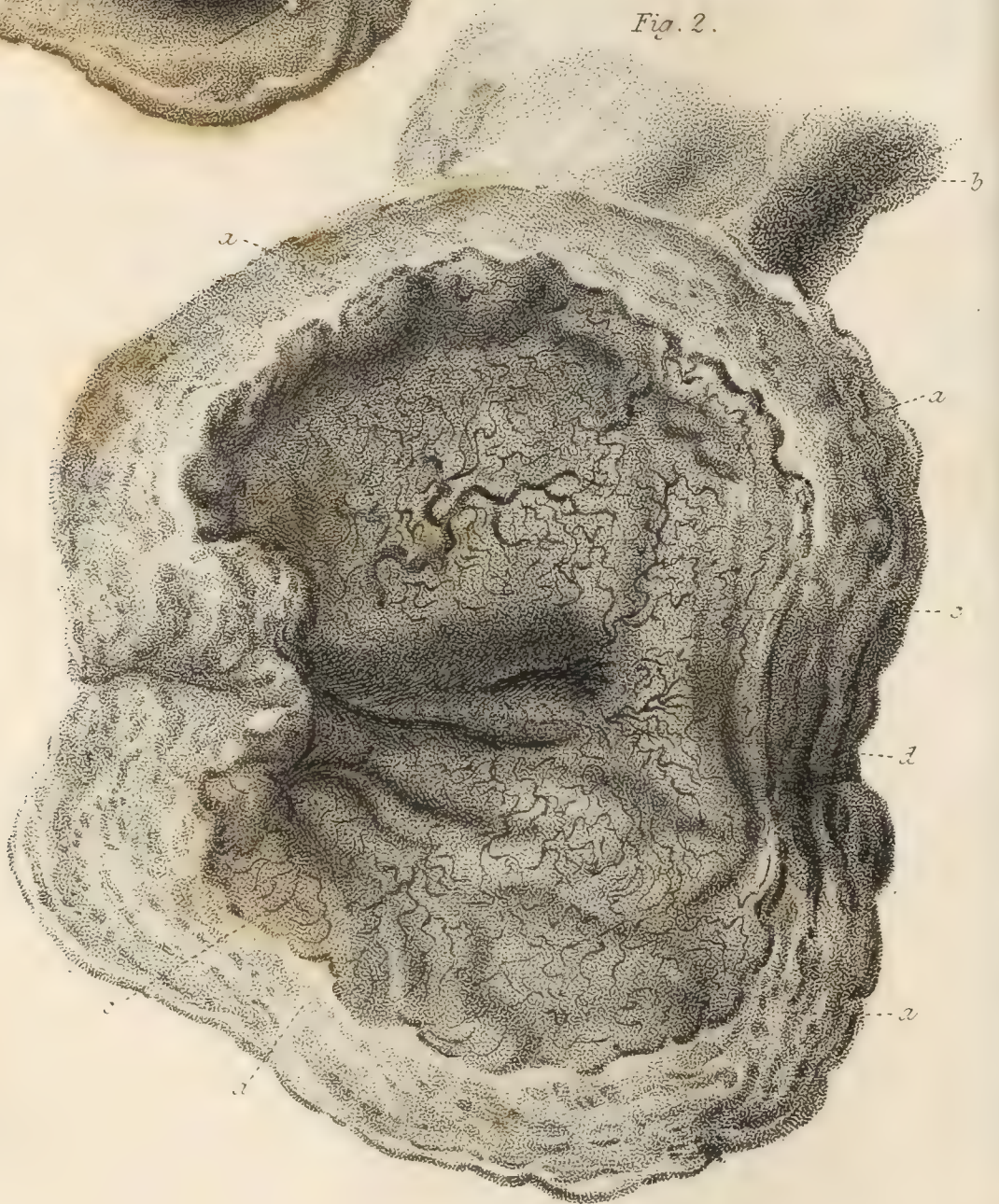


Fig. 2.



EXPLANATION OF THE PLATES.

PLATE I.

Fig. 1.

AN unusually large calculus, weighing four drachms and fifty-six grains, removed from the kidney of a nobleman after death. There were four more calculi of a smaller size in the left kidney, and eleven in the right. This calculus has been divided through the middle, in order to exhibit the internal appearance and arrangement of its laminæ.

- a. a. a.* Parts of the external surface of the calculus.
- b. b.* The cut surface, showing the composition of the stone, which was principally uric acid, although in some parts apparently combined with a certain proportion of the phosphates. From the appearance of the section it is pretty evident that this calculus was originally several distinct parts, which subsequently became united together into one larger mass.
- c. c.* Parts of the external surface rendered particularly smooth, and somewhat depressed by the occasional friction with the smaller calculi, that were found lying in contact with it in the kidney.
- d.* A part of the external surface, that was thinly covered with a deposition of the phosphates.

Fig. 2.

The kidney of a child laid open; showing the effect of distention from accumulation of urine, in consequence of a calculus formed in the kidney having become impacted in the orifice of the ureter. (60.)

- a. a. a. a.* The natural cavities or infundibula of the kidney very much enlarged from the continued pressure of the secreted urine, all the cavities communicating internally with the central part, or pelvis of the kidney.
- b. b. b.* The secreting structure of the kidney, rendered so thin by the pressure as to be in some parts almost entirely destroyed.
- c.* The calculus, as it was found closely wedged into the orifice of the ureter.

Fig. 3.

The urinary bladder of a child laid open on its posterior part, to show a calculus found within its cavity; and also to exhibit the appearance of the internal membrane when labouring under the irritation of stone. (Case 5.)

- a. a.* The thickened parietes of the bladder.
- b. b.* The ureters which were considerably enlarged, and purulent upon their internal surface.
- c.* The neck of the bladder, and internal orifice of the urethra.
- d.* The calculus.
- e.* The surface of the mucous membrane lining the cavity of the bladder, exhibiting the appearance of numerous small spots of extravasated blood from the friction of the stone producing abrasion of the capillary arteries distributed upon the membrane. This appearance demonstrates the principle upon which the urine is in these cases so frequently tinged with blood, showing that it arises merely from the mechanical injury to the membrane lining the bladder.

Fig. 4.

Exhibits the section of the calculus seen in the last figure.

- a.* The nucleus of the stone, which consisted of uric acid,

PLATE III.

Fig. 3.

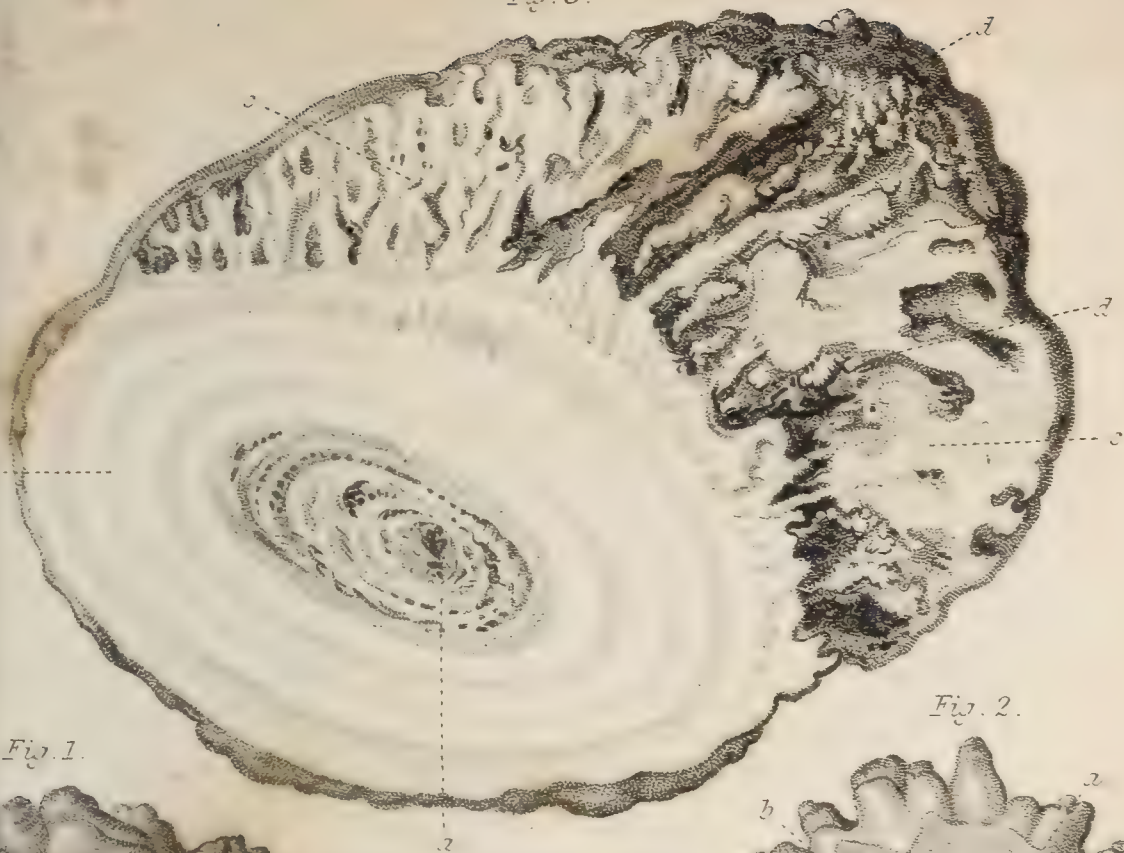


Fig. 1.

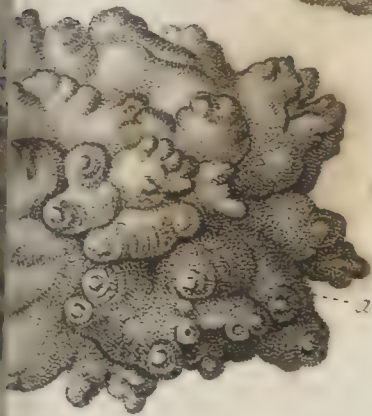


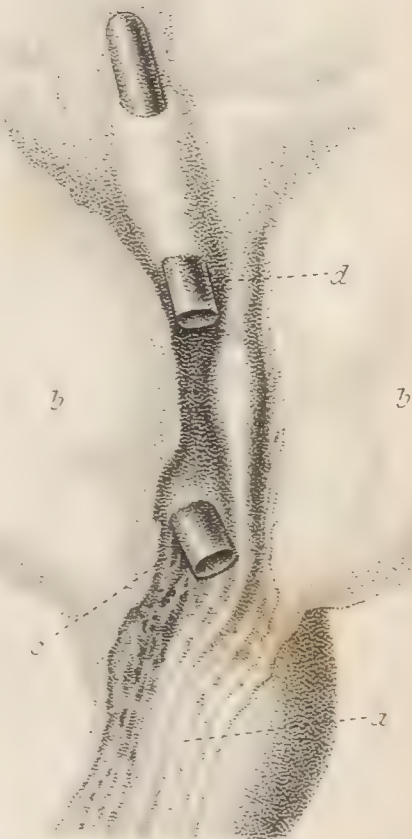
Fig. 2.



Fig. 5.

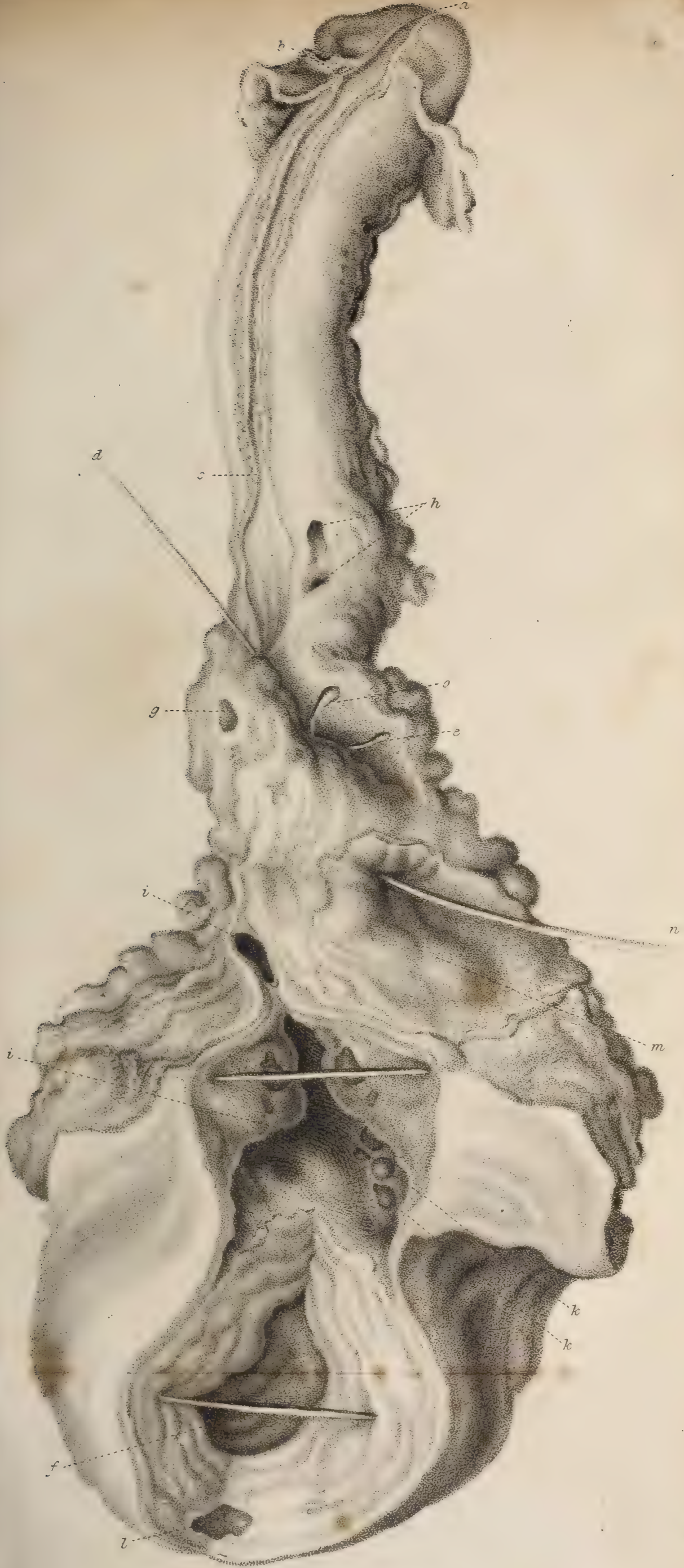


Fig. 4.



J.T. Woodward sc.







- b.* A thin stratum which from its open and loose texture, and light-grey colour was apparently composed of mucous matter and the phosphates only. From the size of the concrete round which this first deposit of the phosphates has taken place, it appears very probable that upon the passage of the uric nucleus from the kidney into the bladder, the secretion of an excess of uric acid had for a time been suspended, a change to be perhaps explained by the escape of the calculus having allowed the irritation within the kidney to subside to a certain degree, although the nature of the subsequent addition proves that this action was very soon reassumed.
- c.* The more external parts of the stone composed of the phosphates with variable proportions of mucous matter.

PLATE II.

Fig. 1.

A very large abscess formed within the kidney, the cavity being laid open on its anterior part. (Case 6.)

- a.* The inner margin of the kidney, or that situated towards the spine.
- b.* The upper extremity of the ureter, into the divided end of which a bristle has been inserted.
- c.* The inferior surface of a part of the liver, which from the inflammation of the kidney, had been united by adhesion to its superior extremity.
- d.* The gall bladder.
- e.* The general cavity of the abscess, the immediate parietes of which were covered with flocculent coagulated matter, together with the purulent contents.
- f.* A portion of a bougie, introduced from the opening made at the posterior part of the kidney, by which the contents of the abscess were evacuated.

Fig. 2.

Shows the appearance produced in the bladder by extreme irritation, from sympathy with scirrhus disease in the rectum.*

- a.a.a.a.* The thickened parietes of the contracted bladder, laid open by a transverse section through its fundus.
- b.* The corpora cavernosa, and corpus spongiosum, of the penis.
- c.* The mucous membrane lining the cavity of the bladder, crowded with innumerable vessels, and excessively loaded with blood.
- d.* The neck of the bladder and orifice of the urethra.

* The CASE is detailed in Practical Observations on the Diseases of the Lower Intestines and Anus.

Fig. 3.

Exhibits a very singular and curious instance of a preternatural fold of the inner membrane of the urinary bladder, extending from the orifice of each ureter to the opening into the urethra in the prostate gland, forming a valve on each attempt to void the urine; which at first impeded its free exit, and at length proved fatal, with symptoms not unlike those of stricture. (394.)

- a.* The posterior part of the cavity of the bladder.
- b.* The orifice of the urethra.
- c.* The opening of the right ureter.
- d.* The opening of the left ureter.
- e.* The preternatural fold.

PLATE III.

Fig. 1.

A mulberry calculus that was adherent, weighing five drachms and four grains; extracted from the urinary bladder by lithotomy. (Case 23.)

- a.* That part of the surface of the stone that was found adhering to the coats of the bladder, the boundaries of which adhesion are very well marked upon the calculus itself, by that part having been rendered much darker in colour than the rest of the surface.

Fig. 2.

Exhibits a section of the calculus shown in the first figure.

- a.* The nucleus, or central part of the stone.
b.b.b. The parts immediately surrounding the nucleus, demonstrating that particular stage of its growth at which the mulberry calculus begins to assume the peculiar radiated appearance which constitutes its most striking external character.

Fig. 3.

A section of a very singularly large calculus, apparently composed of the phosphates; voided by the natural efforts, from the urethra of a female. (Case 24.)

- a.* The nucleus of the stone, the texture of which was extremely loose and friable.
b. The subsequently deposited laminæ, very uniform, and similar in structure throughout.
c. c. A very large mass of calculous matter deposited upon one side of the original concretion.
d. d. Numerous open spaces that were found in the more solid texture of the calculus.

Fig. 4.

Represents the neck of the bladder and prostatic portion of the urethra laid open on the anterior part; from a gentleman who by the unskilful introduction of bougies had produced two false passages. (556.)

- a.* The bulbous part of the urethra.
- b. b.* The lateral lobes of the prostate gland divided, to show the course of the urethra.
- c.* A part of a bougie inserted into a false passage, the direction of which is seen upon the figure to be obliquely backwards, into the substance of the gland.
- d.* Another portion of a bougie passed through a second false passage that had been produced at the neck of the bladder by the bougie first pressing up the inner membrane into a transverse fold, and subsequently passing through it, making its way out again at some distance beyond.

Fig. 5.

Shows the appearance produced by extreme irritation at the neck of the bladder, with effusion of coagulable lymph, and the adhesion of calculous matter to the newly formed surface. (Case 87.)

- a.* The neck of the bladder and prostatic part of the urethra, covered with a layer of coagulable lymph, and crusted over with particles of uric gravel that had become adherent to its surface.
- b. b. b.* Masses of effused lymph, and calculous matter, similar to the above.
- c.* The remaining part of the natural surface of the membrane lining the cavity of the bladder, which was of the brightest red colour, from high inflammation.
- d.* An opening into an abscess connected with the urethra, and formed within the substance of the prostate gland, the cavity of which abscess was covered with adherent calculous matter.

PLATE IV.

Exhibits a striking example of complicated and extensive disease of the urethra, bladder, and prostate gland, not excepting even the rectum; the whole derived in the first instance from the throwing up an injection, to cure a gonorrhœa. (Case 53.)

- a.* The orifice of the urethra, and the glans penis, upon the surface of which may be observed the depressed cicatrices of the chancres.
- b.* The commencement of the stricture that was the immediate consequence of inflammation of the urethra.
- c.* The termination of this contracted part, the extent of which is about two inches and a half.
- d.* A very fine silver probe with difficulty passed through a firm and closely contracted stricture at the bulb of the urethra, and making its appearance behind the stricture through the divided parts, at
- e.* Where the canal might have been brought more into view but for this objection, that the whole of the disease could not in any way be distinctly seen at once, and consequently the other appearances preserved upon the figure would have been partially sacrificed by any further prosecution of the dissection.
- f.* The urinary bladder; its parietes excessively thickened from habitual labour, and its cavity rendered smaller in the same proportion.
- g.* The orifice of one of the fistulous canals, many of which were found passing from the urethra in various directions.
- h.* The double opening from two fistulous passages running into the body of the left corpus cavernosum penis.
- i. i.* The cavity of an extensive abscess formed in consequence of irritation and disease in the prostate gland.
- k. k.* Small rounded calculi with highly polished surfaces, many of which were in this case found deposited in little recesses or cells, around the cavity of the large abscess in the prostate gland.

- l.* A small abscess that was accidentally cut into at the fundus of the bladder, between the external laminæ of its muscular coat.
- m.* A part of the anterior surface of the intestine rectum, closely adherent to the diseased prostate gland.
- n.* A common probe introduced by an ulcerated opening in the coats of the intestine, through the abscess in the prostate gland, thence passing out from the divided part of the urethra, at
- o.* Where the point of the probe makes its appearance immediately behind the stricture.

INDEX.

	Page
<i>Abdomen</i> , tenderness of, an ill sign after lithotomy -	141
<i>Abercrombie</i> , Dr. his remarks on suppression -	3
<i>Abscess</i> , from gonorrhœa, treatment of -	270
———, in perineo, occasional effect of gonorrhœa	261
———, of kidney, a cause of suppression -	2
——— ———, early obscurity of -	109
——— ———, may pass its matter variously -	22
——— ———, scrofulous -	24
——— ———, various seat of -	22
<i>Acescent</i> drinks, improper in gravel -	83
<i>Acid</i> , carbonic, a remedy in gravel -	89
<i>Acids</i> , their tendency, in the living system -	131
<i>Adherent</i> calculi, instances of -	123
——— state of a calculus, modes of ascertaining -	125
<i>Adhesion</i> , between the bladder, and an elastic catheter	319
<i>Albuminous</i> deposits in the urine -	70
——— ——— ———, causes of -	70
——— ——— ———, create irritation -	71
——— matter, analysis of -	71
——— ———, characters of, under the microscope	74
——— ———, from enlarged prostate gland -	73
——— ———, relieved by citric acid -	72
——— ———, may attach itself to the bladder -	73
——— ———, treatment required for -	75
——— ———, specific gravity of, variable -	73
<i>Alkalies</i> , favour the phosphatic diathesis -	88
——— ———, long supposed to possess a solvent power -	121
——— ———, principle on which they relieve -	130
——— ———, successful use of -	122
——— ———, their tendency in the living system -	131
<i>Amorphous</i> sediment, of lithic acid, treatment of -	82
<i>Antiphlogistic</i> treatment, may be required in gravel	85
<i>Apoplexy</i> , from gout affecting the brain -	13
<i>Balsamic</i> medicines, when advisable -	27
<i>Banyer</i> , Dr. his case of bloody urine -	52

	Page
<i>Brande</i> , Professor, analysis of deposit in the kidney	35
———, on the origin of excess of lithic acid	81
<i>Brookes</i> , Mr. his specimens of diseased kidney	35
<i>Bullet</i> , lodged in the bladder, instances of	158
<i>Byron</i> , Dr. mode of removing a coagulum from the bladder	55
<i>Cabrolus</i> , his case of enlarged kidney	24
<i>Calculi</i> , in hernia of the bladder	244
———, in the kidney, may excite inflammation	8
———, ———, treatment of suppression from	18
———, ———, ill consequences of	15
———, prostatal, may induce retention	296
———, renal, sometimes felt to grate upon each other	106
———, urinary, discrimination of	100
———, ———, enumeration of the varieties of	101
<i>Calculous</i> diathesis, causes of	81
———, of two principal kinds	79
——— particles, in the tubuli uriniferi	20
<i>Calculus</i> , in the bladder, mode of finding by the sound	128
———, ———, symptoms of	125
———, in the ureter, existence of, obscure	117
———, ———, treatment of	119
———, ———, lower orifice of	119
——— may become adherent to the bladder	123
——— may form round any extraneous body	120
———, of astonishing size, voided by the urethra	152
———, of excessive magnitude	144
———, of unusual size, in the ureter	212
<i>Carbonate</i> of lime, calculus of	90
———, deposited in the kidney	34
———, ———, effects of	36
<i>Carbonic</i> acid, a valuable remedy, in gravel	89
<i>Catheter</i> , cautions relative to its use	220
——— elastic, adhering to the bladder, instance of	124
———, pushed through the prostate gland	302
———, mode of selecting and introducing	219
<i>Chalybeates</i> , use of, in irritable bladder	180
<i>Cheselden</i> , his mode of cutting for the stone	136
———, opened renal abscesses, and extracted calculi	110
<i>Chordee</i> , a symptom in gonorrhœa	261
<i>Clarke</i> , Dr. his case of diseased kidney	23
———, ——— encysted tumor of kidney	30
<i>Coagulum</i> in the bladder, case of	54

	Page
<i>Coagulum</i> in the bladder, cautions relating to	59
—————, consequences of	54
—————, dissolution of	63
—————, may form the nucleus of	
stone	59
—————, modes of attempting its re-	
moval	57
—————, removed	223
<i>Coma</i> , from suppression, mode of its being induced	15
<i>Communication</i> of bladder and rectum	361
<i>Company</i> , may render stricture irritable	337
<i>Congestion</i> , a cause of suppression	2
<i>Constriction</i> of chest, an effect of certain medicines	274
<i>Contusion</i> , a cause of suppression	5
<i>Cowper</i> , case of grumous disease of kidney	31
<i>Cysts</i> , serous, in the kidney	36
 <i>Davis</i> , Dr. case of hydatids from the kidney	 37
<i>Dawson</i> , Dr. curious case related by	3
<i>Definition</i> of disease, sometimes difficult	161
<i>Delpech</i> , valuable cautions in treating suppression	17
<i>Desault</i> , remarks on suppression	3
—————, treatment of coagulum in the bladder	58
<i>Diarrhœa</i> , unfavourable tendency of, in gravel	89
<i>Diatheſis</i> , calculous, latent ill effects of	144
<i>Diet</i> , to be regarded in suppressed urine	6
<i>Digitalis</i> , may suspend the functions of the kidneys	3
<i>Discharge</i> from urethra, a symptom of stricture	347
<i>Diseased</i> prostate, peculiar symptoms from	189
<i>Diseases</i> of the kidneys	21
—————, uncertainty of symptoms in	21
<i>Douglas</i> , Mr. case of scrofulous kidney	25
 <i>Elastic</i> bougies, merits of	 367
———— catheters, comparative manufacture of	325
———— catheter, may prove the best sound	129
<i>Embarrassing</i> complication of symptoms	171
<i>Examination</i> per anum, occasional importance of	161
<i>Excess</i> , a cause of gravel	81
<i>Exhaustion</i> , a means for removing a coagulum from	
the bladder	55
<i>Extraneous</i> bodies of any kind may become adherent	
to the bladder	124
 <i>False</i> passage, instance of	 369

	Page
<i>False passage, mode of its production</i> - -	301
<i>Fatigue of body or mind, a cause of gravel</i> -	81
<i>Fever, a cause of gravel</i> - -	81
— may cause albuminous deposits in the urine -	70
<i>Feverish paroxysm, in stricture</i> - -	366
— — — — —, treatment of -	374
<i>Fistula, from opening renal abscess</i> - -	29
— in perineo - -	364
<i>Fœtal urethra, imperforate, consequences of</i> -	374
<i>Fourcroy, injected solvents into the bladder</i> -	103
<i>Foxglove, effect of upon the kidneys</i> - -	3
<i>Free incisions, required in sloughing urethra</i> -	279
<i>Functions of skin, influence of in gravel</i> -	86
<i>Fungous tumor in the bladder, instance of</i> -	164
<i>Fungus hæmatodes, of the psoas muscle</i> - -	212
 <i>Gall bladder, may form adhesions with calculi</i> -	124
<i>Glass, Mr. singular congenital dropsy of kidney</i> -	32
<i>Gonorrhœa, abscess from, breaking into the urethra</i>	262
—, fatal instance of - -	267
—, occasional consequence of - -	261
—, — — — — — injecting for -	268
—, peculiar complaint arising from -	263
—, peculiar distress from, in some habits -	265
—, seat of - - - -	259
—, swelled testicle from - -	263
—, symptoms and appearances in - -	260
—, treatment of - - - -	269
<i>Gooch, Mr. case of scrofulous affection of kidney</i> -	26
<i>Gout may excite albuminous deposits in the urine</i> -	70
—, transferred to the kidneys, instance of -	71
<i>Gouty action, an occasional cause of suppression</i> -	9
—, of kidney, connected with red gravel -	14
<i>Gouty rheumatism, combined with spasmodic stricture</i>	356
— spasm, at the neck of the bladder -	234
— — — — —, treatment of -	235
<i>Gravel, in the urine</i> - - - -	78
—, causes of - - - -	81
—, distinctions of sediments -	79
—, may adhere to the bladder -	122
—, may block up the ureter -	116
— uric, treatment of - - - -	83
 <i>Hawkins, Sir Cæsar, mode of cutting for the stone</i> -	136
<i>Hazel-nut, nucleus of a urinary calculus</i> - -	120

	Page
<i>Heaviside</i> , Mr. his case of adherent calculus	124
———, case of extraordinary disease	48
———, mode of operating for renal abscess	112
———, remarks by	9
———, specimens in the Museum of	35
<i>Hennen</i> , Dr. case of wounded kidney	38
<i>Henry</i> , Dr. observation by	3
<i>Hernia</i> , instance of	243
———, of the bladder	242
———, strangulated, may cause retention of urine	235
<i>Hip-bath</i> , in affections of the kidney	12
<i>Home</i> , Sir Everard, experiments on blood in urine	56
<i>Hooper</i> , Dr. case of abscess of kidney	42
———, mode of treating gravel	85
<i>Hydatids</i> in the kidney	37
<i>Hyoscyamus</i> , when to be preferred to opium	91
<i>Independence</i> of opinion, importance of	171
<i>Inflamed</i> vein, from gonorrhœa	266
<i>Inflammation</i> of kidney, a cause of suppression	2
———, caused by gout	8
———, favourable signs in	11
———, scrofulous and common	24
———, treatment of	11
——— of the bladder	230
———, causes of	231
———, symptoms of	231
———, treatment required in	232
——— of the urethra	257
———, causes of	258
———, symptoms of	258
———, treatment in	258
——— peritoneal, symptoms of	39
<i>Injections</i> may cause stricture in the urethra	334
<i>Injury</i> of the loins, a common cause of gravel	81
<i>Inner membrane</i> of kidney, appearance under disten- tion	34
<i>Iridescent</i> pellicle, a sign of the phosphatic diathesis	88
<i>Irritable</i> bladder	156
———, followed by ulceration	164
———, from a growth of hair in its cavity	166
———, from chronic inflammation	162
———, from fungous tumors within it	164
———, from fungus hæmatodes	167
———, from preternatural excitement	162

<i>Irritable</i> bladder, from spontaneous disease	-	164
———, from sympathy with surrounding parts	- - - -	163
———, from wound	- - -	157
———, may arise from cold	- - -	161
———, may be consequent to external violence	- - - -	156
———, symptoms of	- - -	156
———, treatment of	- - -	168
——— stricture, requires judicious management	-	341
———, treatment of	- - -	371
——— urethra, distressing instance of	-	181
<i>Irritation</i> of bladder, a cause of gravel	- -	87
<i>Johnstone</i> , Dr. curious facts in suppression	-	3
<i>Kali</i> purum, its application to stricture	- -	372
———, principle on which it relieves	-	373
<i>Kidney</i> , abscess of	- - -	21
———, a cause of suppression	- -	2
———, best mode of opening	-	29
———, occasionally a disease of infancy	-	24
———, scrofulous, difficulty in ascertaining	-	26
———, signs of	- - -	22
———, state of the urine in	- - -	27
———, subsequent treatment of	-	30
———, when to be opened	- -	28
———, calculi within	- - -	103
———, conversion of into hydatids	- -	37
———, diseased, not always fatal	- -	28
———, distention of	- - -	33
———, excessive enlargement of	- - -	210
———, extraordinary disease of	- -	48
———, fatal abscess of	- - -	39
———, fatal bleeding from, instance of	- -	61
———, fungous tumor within	- - -	52
———, gangrene of	- - -	38
———, gouty affection of, case of	- -	13
———, to be watched	- -	12
———, immense abscess of, case of	- -	40
———, inflamed, appearances of, after death	-	11
———, favourable symptoms in	-	11
———, treatment of	- -	11
———, may cause suppression	-	2
——— injured, instance of	- -	6

	Page
<i>Kidney</i> , one diseased, the other secretes more actively	28
———, purulent, from calculi, instances of	106
———, indications of its approach	108
———, scirrhus of	38
———, scrofulous abscess, instance of	44
———, scrofulous, injected appearances of	26
———, singular congenital dropsy of	32
<i>Laing</i> , Dr. case of inflammatory suppression	9
<i>Langstaff</i> , Mr. dissection of a purulent kidney	16
<i>Larrey</i> , Baron, treatment of coagulum in the bladder	55
<i>Le Cat</i> , M. case of adherent calculus	123
<i>Le Dran</i> case of gravel in the ureter	118
———, instance of calculus in the ureter	119
<i>Lieutaud</i> , opinion upon solvents	121
———, remarks on calculus in the kidneys	109
———, on the symptoms of inflamed kidney	10
<i>Lime</i> , carbonate of, from the bladder of the horse	87
———, in the human kidney	34
<i>Liquor</i> potassæ, a remedy in gravel	93
<i>Lithate</i> of ammonia, appearance of in the urine	80
<i>Lithic</i> acid, diathesis, treatment of	82
———, on red gravel	79
———, singular state of urine from	80
——— calculus, and carbonate of lime, in the same kidney	36
<i>Lithontriptics</i> , modus operandi of	102
<i>Lithotomy</i> , conditions necessary for success in	134
———, importance of keeping the patient dry	146
———, modes of performing	134
———, subsequent management of	140
———, performed where no stone existed	133
———, performed by the knife alone,	141
———, rarely necessary in the female	142
———, successful with very large calculus	143
———, unhappily performed, ill consequences of	147
———, when to be recommended	133
<i>Lymph</i> , coagulable, shreds of, passed with the urine	176
<i>Marcet</i> , Dr. enumeration of urinary calculi	107
———, his opinions upon gravel	83
<i>Martineau</i> , Mr. case of diseased kidney	31
<i>Medicines</i> irritating, may cause inflamed kidney	8
<i>Membrane</i> , transverse fold of, in the bladder	126
<i>Metallic</i> bougies, objectionable	368

<i>Mucous</i> membrane within the kidney, singular ulcerative disease of	-	-	-	23
<i>Mucus</i> , a supposed cause of suppression	-	-	-	25
<i>Nephrotomy</i> , successfully performed	-	-	-	111
<i>Numbness</i> of thigh, from injury of the kidney	-	-	-	6
<i>Operation</i> for abscess in the kidney	-	-	-	41
————, for extracting a bullet from the bladder	-	-	-	169
<i>Opiates</i> , usefulness of, in affection of kidney	-	-	-	12
<i>Opium</i> , invaluable, in renal calculus	-	-	-	114
————, solution of, injected into the bladder	-	-	-	45
————, unfavourable in the lithic diathesis	-	-	-	91
<i>Oxalate of lime</i> diathesis, characters of	-	-	-	92
————, gravel rarely seen	-	-	-	91
<i>Paralysis</i> , a cause of albuminous deposit	-	-	-	71
————, from diseased joint in the neck	-	-	-	226
————, from pus effused into the theca vertebralis	-	-	-	225
————, inducing retention, sometimes inexplicable	-	-	-	226
————, inducing albuminous sediment, instance of	-	-	-	77
<i>Paralytic</i> affection from gout	-	-	-	13
<i>Pastry</i> , coarse, unwholesome	-	-	-	83
<i>Pearson</i> , Dr. analysis of expectorated matter	-	-	-	71
<i>Peculiar</i> deposit in the kidney	-	-	-	34
<i>Phosphatic</i> diathesis, causes of	-	-	-	86
————, connected with debility	-	-	-	86
————, indications of	-	-	-	86
————, symptoms of	-	-	-	87
————, treatment of	-	-	-	88
<i>Pink</i> sediments in the urine	-	-	-	80
<i>Porpoise</i> , peculiar structure of urethra in	-	-	-	330
<i>Pouch</i> in the bladder, mode of its formation	-	-	-	121
<i>Prolapsus ani</i> , from the steam of warm water	-	-	-	190
<i>Prostate</i> , enlarged, with immense hernia	-	-	-	322
————, wounded by the catheter	-	-	-	323
————, scirrhus induration of	-	-	-	299
————, relieved by punctured bladder	-	-	-	317
————, symptoms of	-	-	-	299
————, wounded by the catheter	-	-	-	314
————, sloughy state of, from irritation	-	-	-	327
<i>Prostate gland</i> , abscess of	-	-	-	295
————, affection of, liable to be mistaken	-	-	-	127
————, enlargement of	-	-	-	291

	Page
<i>Prostate gland</i> , enlargement of, introduction of the catheter for - - - -	293
_____, symptoms induced by	292
_____, treatment of -	293
_____, peculiar affection, from gonorrhœa -	263
<i>Prout</i> , Dr. researches on the diseases of the urine -	80
<i>Puncture</i> of bladder, case of - - -	284
<i>Punctured bladder</i> - - - -	317
_____, - - - -	312
_____, - - - -	311
_____, - - - -	284
_____, - - - -	286
_____, from enlarged prostate - -	325
<i>Purpurate</i> of ammonia, formed by the kidneys -	80
_____ of soda, formed in the urine -	80
<i>Purulent</i> kidney, symptoms of its approach -	108
<i>Pus</i> , a supposed cause of suppression - -	5
_____ and albuminous matter in the urine, instance of	67
_____ in the urine, appearance of - -	64
_____, characters of, under the microscope	69
_____, difficulty in distinguishing -	64
<i>Rectum</i> and bladder, communication between, case of	43
<i>Red gravel</i> , or uric acid - - - -	79
<i>Renal</i> abscess, mode of opening - - -	112
_____ calculi - - - -	103
_____, cause of - - - -	103
_____, consequences of - - - -	105
_____, difficulty in determining the existence of	105
_____, seat of - - - -	103
_____, several may unite together -	104
_____, symptoms usually induced by -	105
_____, treatment of - - - -	111
<i>Retention</i> , from displacement of viscera -	247
_____, from hernia of the bladder -	242
_____, from pressure of the gravid uterus -	249
_____, from pressure of rectum upon the bladder	250
_____, from ruptured bladder - - -	252
_____, instances of - - - -	252
_____, from scirrhus tumor in the bladder -	241
_____, from tumor or other growth in the bladder -	239
_____, of urine, fatal error, from its supposed existence - - - -	17
_____, in the bladder - - - -	217

	Page
<i>Retention</i> of urine in the bladder, a serious complaint	218
_____ , effects of its continuance	218
_____ , from age	222
_____ , treatment of	223
_____ , from inflammation	230
_____ , from paralysis	224
_____ , modes of ascertaining	218
_____ , treatment of	219
_____ , in the ureters	208
_____ , with diseased bladder	216
_____ , in the urethra	257
_____ , from contusion of the urethra	276
_____ , from enlarged prostate gland	291
_____ , from inflammation of the urethra	257
_____ , from spasmodic stricture	328
_____ , from stricture in the prepuce	410
_____ , from tumor in scrotum, perineum, or penis	290
_____ , symptoms induced by	277
<i>Rupture</i> of bladder, from a very singular accident	254
<i>Sand</i> , or gravel, in crystals	79
<i>Scrofulous</i> abscess of kidney	24
_____ , appearances of	25
_____ , treatment of	27
<i>Sediment</i> , albuminous, in the urine, case of	75
<i>Serous</i> cavities, or cysts, within the kidney	36
<i>Simmons</i> , Mr. case of renal calculi from the loins	110
<i>Skin</i> , functions of, their influence in gravel	86
<i>Sloughing</i> of the urethra, from bruise	277
_____ , from difficult labour	281
_____ , treatment of	278
<i>Solvents</i> relieve by allaying irritation	102
<i>Sounding</i> may lead to a deceptive conclusion	133
_____ , position of the patient for	128
_____ , the only means of proving the existence of stone	128
<i>Spasmodic</i> stricture	332
_____ , causes of	333
_____ , habits of	333

	Page
<i>Sphere</i> of irritation, in gonorrhœa - -	265
<i>Spine</i> , injury of, may induce retention of urine -	225
<i>Spilsbury</i> , Mr. remarks on the functions of the kidneys - - - - -	83
<i>Stomach</i> , affections of, in renal calculus - -	106
<i>Stone</i> in the bladder, dissection of - -	39
—————, may fall into a pouch - -	121
————— ureter - - - - -	116
—————, symptoms of, none of them decisive -	127
<i>Strangulated</i> hernia, may induce retention of urine -	235
<i>Stricture</i> , a cause of gravel - - - - -	87
—————, importance of ascertaining correctly -	171
—————, irritable, may not admit a bougie -	340
—————, most frequent seat of - - - - -	335
—————, permanent, morbid appearances in -	365
—————, natural modes of relief under -	363
<i>Stricture</i> , permanent, may be subject to periodical spasm - - - - -	385
—————, treatment of - - - - -	367
—————, spasmodic, from affection of rectum -	354
—————, liable to return - - - - -	340
—————, treatment of - - - - -	339
—————, supposed existence of, from irritation in the urethra - - - - -	171
<i>Suppression</i> of urine - - - - -	1
—————, causes of - - - - -	2
—————, diagnostics of - - - - -	1
—————, favourable signs in - - - - -	4
—————, from calculi in the kidneys - -	14
—————, from calculi, treatment of - -	16
—————, from full bladder - - - - -	2
—————, not always possible to ascertain -	4
—————, partial, connected with inflammation of the kidneys - - - - -	10
—————, from renal calculi, case of - -	18
—————, from stone in the kidney, case of -	19
—————, symptoms of - - - - -	3
—————, symptoms sometimes deceptive -	17
—————, treatment of - - - - -	5
<i>Suppuration</i> of kidney, indications of - - -	22
<i>Swelled testicle</i> , from gonorrhœa - - - -	263
<i>Sympathy</i> , extensive influence of - - - -	155
<i>Terebinthinate</i> medicines, in gonorrhœa, when proper -	273
<i>Testicles</i> , swelled, from gonorrhœa - - -	263

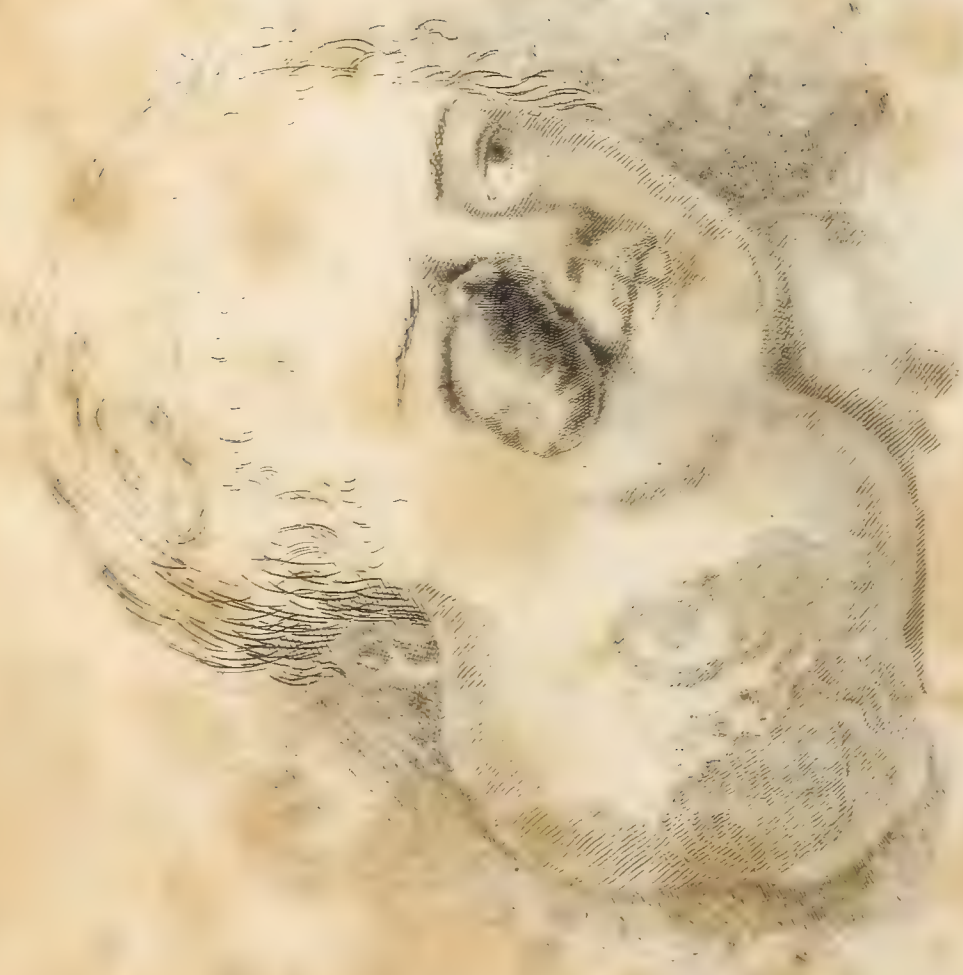
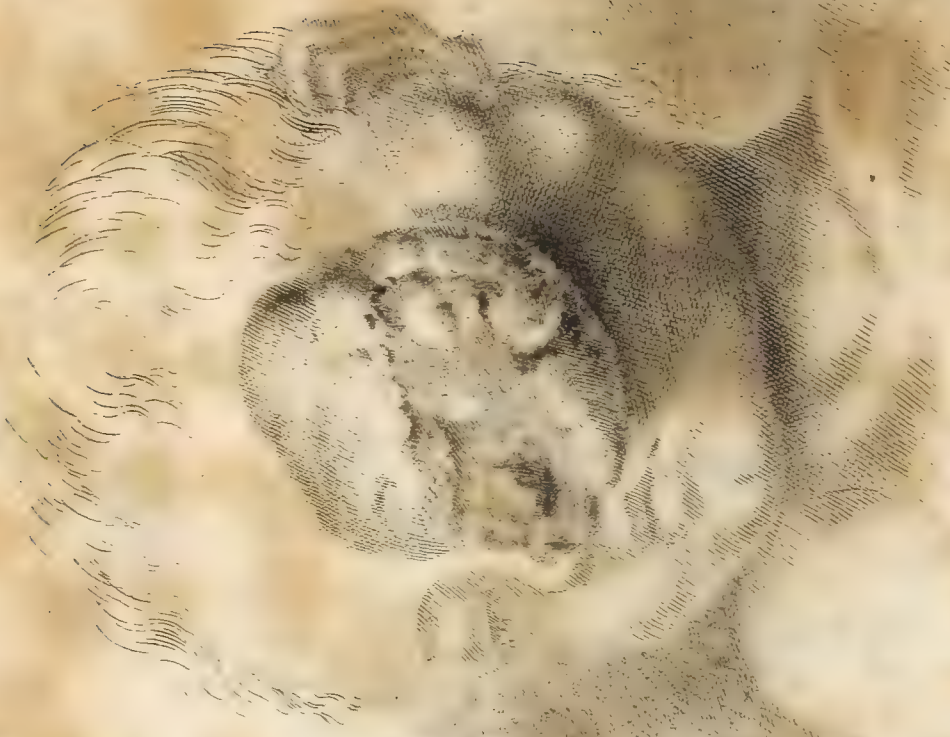
	Page
<i>Torpor</i> , of the thigh, a symptom in renal calculi	114
<i>Transition</i> state of calculi, traced by Dr. Prout	90
<i>Trocar</i> , lancet-pointed, danger of using	31
———, suggestion for improving	29
<i>Tumor</i> in the bladder, successful removal of	240
<i>Turpentine</i> , its influence upon gravel	85
<i>Tyson</i> , Dr. case of nephrotomy	111
<i>Ulceration</i> internal, importance of the question	68
<i>Unusual</i> symptoms, from irritation about the bladder	174
<i>Ureter</i> , calculi in the canal of	118
———, calculus in the lower opening of	212
———, impervious state of	211
———, obstructed, fatal case of	211
———, from hydatids	213
———, retention of urine in	216
———, sometimes incrustated with adherent gravel	116
———, stricture in	209
<i>Urethra</i> , complicated functions of	330
———, contusion of, treatment in	278
———, hæmorrhage from	53
———, imperforate, curious effects from	374
———, natural appearances of, internally	329
———, spasmodic stricture in	328
———, structure of	328
<i>Uric acid</i> , gravel formed of	79
<i>Urinary</i> abscess, mode of its formation	364
——— calculus, instance of, without symptoms	150
———, of immense size, passed by the rectum	150
<i>Urine</i> , bloody, origin of, how to determine	53
———, consequent upon contused kidney	5
———, containing blood, appearance of	51
———, incontinence of	202
———, agency of fear, in curing	203
———, the effect of violent distention of urethra	206
———, induced by difficult labour	204
———, a symptom of stone	127
———, treatment of	205
———, occasional low specific gravity of	86
———, secretion of, diminished in red gravel	95
———, in renal calculus, variable	106
———, singular appearance of, from excess of uric acid	97

	Page
<i>Urine</i> , suppression of - - - - -	1
—————, causes of - - - - -	2
<i>Varicose</i> veins, at the neck of the bladder -	163
—————, symptoms from - - - - -	298
<i>Vein</i> , inflammation of, in gonorrhœa - - -	266
<i>Venous</i> congestion, at the neck of the bladder, instance of - - - - -	184
<i>Vesicula</i> seminalis, rare disease in - - -	361
<i>Vomiting</i> , a symptom in renal calculus - -	106
—————, unsafe, in diseased states of kidney -	23
<i>Watson</i> , Mr. case of purulent kidneys - - -	24
<i>Wax</i> bougies, merits of - - - - -	367
<i>Worms</i> , a supposed cause of suppression - -	5

THE END.

LONDON :
Printed by A. & R. Spottiswoode,
New-Street-Square.





OBSERVATIONS
ON
FUNGUS HÆMATODES
OR
SOFT CANCER,
IN SEVERAL OF
THE MOST IMPORTANT ORGANS
OF THE
HUMAN BODY:

CONTAINING ALSO A COMPARATIVE VIEW OF THE STRUCTURE OF
FUNGUS HÆMATODES AND CANCER.

WITH CASES AND DISSECTIONS.

BY
JAMES WARDROP, F.R.S.E.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS, AND ONE OF THE SURGEONS
OF THE PUBLIC DISPENSARY OF EDINBURGH.

ILLUSTRATED BY PLATES.

EDINBURGH :

Printed by George Ramsay and Company,
FOR ARCHIBALD CONSTABLE AND COMPANY, EDINBURGH; AND
CONSTABLE, HUNTER, PARK, AND HUNTER,
LONDON.

1809. —



TO

MATTHEW BAILLIE, M. D. F. R. S.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON,

&c. &c. &c.

DEAR SIR,

THE advantages which the science of Medicine has derived from your valuable work on the Morbid Anatomy of the Human Body, induce me to lay the following observations before the public under the patronage of your name.

Impressed with the opinion that inquiries, conducted in the manner you have so successfully pursued, afford the surest means of ascertaining the true nature of diseases, and lead to the best criterion for distinguishing them from each other, I have endeavoured to follow the path which you have pointed out, and attempted, by dissection, to distinguish Cancer from one of those diseases with which it has been generally confounded.

Allow me to entertain the hope, that these observations will not be uninteresting to one who contributed to institute a society for investigating the nature and cure of Cancer; and it will give me sincere pleasure, should the following account of a disease, perhaps the most afflicting to which the human race is subject, be considered as a satisfactory answer to one of the most important queries proposed by that laudable institution.

I am,

With sincere regard,

Dear Sir,

your much obliged,

and obedient servant,

JAMES WARDROP.

EDINBURGH, }
July 1809. }

PREFACE.

AN outline of the following Observations was read nearly two years ago before the Chirurgical Society of Edinburgh, an institution formed by the members of the Royal College of Surgeons, for the purpose of promoting medical and surgical knowledge. The subject having thus become one of general conversation among his medical friends, the author was enabled to add many important facts to his original observations; and it acquired such importance as to induce him to lay the result of his inquiries before the public in the present form.

An accurate investigation of the history and morbid appearances of Fungus Hæmatodes and Cancer, is, perhaps, as interesting a subject as can come within the sphere of medical inquiry, and is the only sure path in which we can set out to explore the nature of these diseases, or from which we can expect to discover rational principles for their treatment.

On the following observations one remark may be made,—that they are not an attempt to recommend to the public a remedy for a disease which has been generally, the author may almost say universally, found to be incurable ; on the contrary, of the numerous cases which he has detailed, and referred to in the various parts of the work, there is scarcely one where the disease has not proved fatal. It has been a severe reproach on medical men, that they have seldom brought before the public an account of cases,

the termination of which has been unfavourable; and that they have generally contented themselves with selecting a few extraordinary cures, with the view either of recommending some favourite remedy, or of adding to their own professional reputation. Such a practice is attended with the worst effects in the science of medicine. Practitioners are thus deceived in forming their opinions, and in the employment of particular modes of treatment recommended by others; and future inquirers are prevented from deriving that assistance and information which the experience and observation of those who have preceded them might have otherwise afforded. The author, therefore, hopes that this work will not prove less useful, by bringing before the public the discussion of a subject, where the present state of the practice of medicine can avail little, than by attempting, in an ostentatious display of suc-

cessful cases, to recommend a favourite remedy.

Aware that what he has done by no means exhausts the subject of the present observations, the author will feel gratified if his endeavours shall have the effect of directing the attention of the medical profession to similar inquiries ;—convinced that it is chiefly by these that we can expect the improvement of an art, which so deeply involves the comfort and happiness of mankind.

CONTENTS.

CHAP. I.

General Observations on Fungus Hæmatodes, . . . Page 1

CHAP. II.

Of Fungus Hæmatodes of the Eye-ball,	-	10
1.—External Appearances of the Disease,	- -	ib.
2.—Appearances on Dissection,	- -	14
3.—History of the Disease,	- - -	25
Case I.	- - - -	30
II.	- - - -	35
III.	- - - -	41
IV.	- - - -	43
V.	- - - -	44
VI. and VII.	- - - -	46
VIII.	- - - -	47
IX. and X.	- - - -	50
XI.	- - - -	55
XII.	- - - -	59
XIII.	- - - -	62
XIV.	- - - -	63
XV.	- - - -	66
XVI.	- - - -	74
XVII.	- - - -	81
4.—Concluding Observations,	- -	86

5.—Of the Treatment of the Fungus Hæmatodes of the Eye-ball,	Page 90
6.—Observations on the Mode of Extirpating the Eye-ball,	93

CHAP. III.

Of Fungus Hæmatodes in the Extremities,	99
1.—External Appearances of the Disease,	ib:
2.—Appearances on Dissection,	105
Case XVIII.	110
XIX.	113
XX.	115
3.—Of the Treatment of Fungus Hæmatodes in the Extremities,	122

CHAP. IV.

Of Fungus Hæmatodes in the Testicle,	124
1.—External appearances of the disease,	ib.
2.—Appearances on Dissection,	130
Case XXI.	134
XXII.	136
XXIII.	139
XXIV.	140
XXV.	141
3.—Of the Treatment of Fungus Hæmatodes in the Testicle,	144

CHAP. V.

Of Fungus Hæmatodes in the Liver,	147
1.—Appearances on Dissection,	ib.

CHAP. VI.

Of Fungus Hæmatodes in the Spleen,	155
Case XXVI.	157

CONTENTS.

xiii

CHAP. VII.

Of Fungus Hæmatodes in the Kidney,	-	Page 162
------------------------------------	---	----------

CHAP. VIII.

Of Fungus Hæmatodes in the Lungs,	-	165
-----------------------------------	---	-----

CHAP. IX.

Of Fungus Hæmatodes in the Uterus,	-	167
------------------------------------	---	-----

CHAP. X.

Of Fungus Hæmatodes in the Ovarium,	-	170
-------------------------------------	---	-----

CHAP. XI.

Of Fungus Hæmatodes in the Female Breast,	-	173
---	---	-----

CHAP. XII.

Comparative View of the Structure of Fungus Hæmatodes and Cancer,	-	178
1.—Analogy between Fungus Hæmatodes and Can- cer, &c.	-	ib.
2.—Of the Structure and Appearances in Scirrhus and in Fungus Hæmatodes,	-	181
3.—Of the Texture in which Fungus Hæmatodes ori- ginates,	-	191
Explanation of the Plates,	-	199



CHAP. I.

GENERAL OBSERVATIONS ON FUNGUS

HÆMATODES.

THE disease which is the subject of the following observations, in whatever organs of the body it may have been known to occur, has been generally classed and treated as a *cancerous* affection. Though, in its history, it has some analogy to cancer, yet its symptoms, and the appearances on dissection, are so different from those of cancer, that it cannot be considered as a disease arising from the same morbid alteration of structure*. The

* The terms *scirrhus* and *cancer* are used in the following pages as expressive of *two* stages of the same morbid affection, the first expressing what has been called the *occult*, and the latter the open or *ulcerated* state of the disease.

occurrence of fungus hæmatodes is by no means unusual ; the symptoms with which it is attended, and the appearances on dissection, are very striking, and very different from those of any other disease ; from all which, as well as from its destructive and fatal effects, it must appear somewhat unaccountable, that it should have been so long overlooked by pathological inquirers.

Mr John Burns, of Glasgow *, is the first person who has given a detailed account of this morbid change of structure. He has described it under the name of *spongoid inflammation* ; but he has mentioned it only as appearing in the inferior extremities of the body, and in the upper part of the shoulder.

Mr Hey, of Leeds †, afterwards described several cases of a disease, to which he gave the name of *fungus hæmatodes*, occurring in the superior and inferior extremities, and also in the female breast. Some of these

* Dissertations on Inflammation, by John Burns, 1800.

† Practical Observations in Surgery, London, 1803.

cases were very analogous to the spongoid inflammation of Mr Burns, though Mr Hey does not appear, from his writings, to have been acquainted with Mr Burns's observations until his own were published.

Mr Abernethy, in his ingenious Essay on Tumors, gives an account of a disease, under the name of *medullary sarcoma* *, the appearances of which are also quite analogous to the spongoid inflammation of Mr Burns, and to some of the cases of the fungus hæmatodes of Mr Hey. The description of this morbid change of structure, given by Mr Abernethy, is illustrated by two cases, in one of which the disease appeared in the inferior extremities, and in the other the testicle was affected; Mr Abernethy, however, though he does not mention its occurrence in any other particular organ, remarks, that "tumors of a similar structure have been found to exist in various parts of the same subject."

* Surgical Observations, &c. 1804.

The disease has also been called by some authors, and in some schools of surgery, *soft cancer*.

Though the observations of these respectable authors have, no doubt, contributed to draw the attention of pathologists to this very interesting subject, yet they have left much to be done, and they may only be considered as having paved the way for future inquirers. None of these authors seems to have compared his observations with those of the others; each has affixed a different name to the disease which he has described; and this multiplicity of names has proved a very considerable barrier to the advancement of our investigations. Mr Hey, indeed, I much suspect, has described, under the name of fungus hæmatodes, cases of disease which are not analogous to one another; and since his publication, the term has been applied by many to all those diseases which were not cancerous, but which had some resemblance to it, from their formidable appearance and fatal effects.

In the following observations, therefore, it has been my great object to point out the anatomical structure of the fungus hæmatodes, and to fix precise limits to the import of the name—to bring under one general view a considerable number of facts, the greater part of which have fallen under my own notice, along with others which have been communicated to me by my medical friends, or which are to be found insulated, and not arranged, in the works of different authors—and also, to describe the disease in particular organs, where it has not been hitherto known to exist. “Souvent,” says Lænnec, “une seule observation nouvelle peut servir à en lier, ou éclaircir une multitude d’autres, et utiliser ainsi une foule de faitès, perdus pour la science à raison de leur isolement *”.

The disease first excited my particular attention, from having had an opportunity of observing an example of it, in its early stage,

* Vide Note sur l’Anatomie Pathologique par R. T. H. Lænnec, Journal de Chirurgie, &c. tom. ix.

affecting the eye-ball, and of tracing its whole progress, to its fatal termination. Its first symptoms appeared to me quite anomalous, and did not correspond with the description of any disease in that organ which I had either before seen or had found described by any author. But towards its termination, when a large fungous mass grew out from the eye-ball, I suspected it might be an example of the disease commonly considered as a cancerous affection of that organ, examples of which I had before seen in this advanced stage. The appearances on the dissection of this case, the age of the patient, and observations on similar cases, which, afterwards came under my notice, convinced me that the disease was of a nature quite different from cancer, and that it had a great analogy to the disease which had received the names of spongoid inflammation, fungus hæmatodes, and medullary sarcoma, in some other parts of the body. Future observations on the appearances and termination of the disease, not only in the eye-ball,

but also in different organs of the body, have satisfied me of the truth of these remarks, and have convinced me, that a great number of those cases which have been described and classed among cancerous affections in various organs, have no analogy in their structure to cancer, do not admit of the same mode of treatment, and therefore ought to be considered as of a different and distinct nature.

It is therefore proposed, in the following pages, to describe the appearances, and point out the character of fungus hæmatodes, in some of the most important organs of the human body. As these may be more easily traced, and more distinctly and satisfactorily seen during their whole progress in the eye, than in any other part, I shall first give a description of the disease in that organ ; it will be next examined in the superior and inferior extremities, in the testicle, mamma, uterus and ovarium, liver, spleen, lungs, and thyroid gland, in all of which parts its existence has been ascertained. Having done this, some general views of the change of

structure in fungus hæmatodes will be pointed out, and a comparison made between it and the cancerous structure ; the texture or textures in which it originates will also become an object of investigation ; and, afterwards, such practical conclusions will be drawn from a review of all the facts in the history of the disease as our *data* appear to warrant.

I have already mentioned the obscurity which has been thrown on this subject by the introduction of different names. However difficult it may be to choose names for diseases, such as can convey an accurate idea of the nature of the complaint, yet it is of the utmost importance to specify, in a precise manner, the exact meaning, and to limit the signification of every name. In the present instance, were I to choose a name, none of those which I have mentioned appears to me to be altogether eligible. The words *spongoid* inflammation, would lead us to conceive that the disease was a species of which inflammation was the genus ; *soft cancer*, for the

same reason, would make the disease appear to be a species of the genus of cancer ; and the term *medullary* sarcoma is certainly ambiguous, and only expresses one of the characters of the tumor. Nor can the term *fungus hæmatodes* be employed without objection ; but as it points out some of the leading characters of the disease, and as it is already in use, I shall adopt it in preference to any of the others.

CHAP. II.

OF THE FUNGUS HÆMATODES OF THE EYE-BALL.

1.—*External Appearances of the Disease.*

THE first appearances of the fungus hæmatodes, when it attacks the eye, are observed in the posterior chamber. The pupil becomes dilated and immoveable, and, instead of having its natural deep black colour, it has a dark amber, and in some cases a greenish hue, giving to the eye very much that appearance which is observed in the sound eye of the sheep, the cat, and in many of the lower animals. As the progress of the disease advances, the colour becomes more remark-

able; and it is soon discovered to be produced from a solid substance, which is forming at the bottom of the eye, and gradually approaching towards the cornea.

The surface of this substance is generally rugged and unequal, and not unlike what may be supposed to arise from a quantity of effused lymph. In some cases, red vessels can be seen running across the opaque body, but these are not the vessels which nourish it, but the ramifications of the central artery of the retina lying above it. During the progress of the disease, the new formed substance gradually fills up the whole of the posterior chamber; its surface advances so as to arrive at the same plane with the iris, and has the appearance of an amber or brown-coloured mass. In this stage of the disease, I have known two cases which were mistaken for cataracts, and in one of them an experienced surgeon attempted to couch it. When the disease advances still further, the form of the eye-ball begins to alter, acquiring an irregular, knobbed appearance; at the

same time the sclerotic coat loses its natural pearly white colour, and becomes of a dark blue or livid hue. The tumor, by its continued growth, finally occupies the whole anterior chamber; and, in some cases, a quantity of purulent matter collects between it and the cornea. At last the cornea ulcerates, and a *fungous* tumor shoots out from the portion of the diseased substance, contiguous to the ulcerated cornea; and, in other cases, the tumor pushes itself through the sclerotic coat.

This fungus is very rapid in its growth, and, before the disease arrives at a fatal termination, it often acquires a very great bulk. When it is small, it has a good deal of the appearance of the softer kinds of polypi which grow from mucous membranes. It is generally of a dark red, or purple colour. Its surface is irregular, and often covered with coagulated blood.

The substance of this fungus is very readily torn; and when a portion of it is separated, or if it be slightly scratched, it bleeds pro-

fusely. In other cases, the tumor is of a firmer texture, and if, as sometimes happens, instead of coming through the cornea, it burst through the sclerotic coat, it then pushes before it the conjunctiva, and thus derives a mucous covering. When the tumor becomes very large, portions of the most prominent parts begin to lose their vitality, and separate in sloughs, which have a very fetid and offensive smell, and are accompanied with the discharge of an acrid sanies.

The absorbent glands become also affected during the progress of the disease; they swell and inflame, and sometimes grow to an enormous size*. In some cases the swelling of the glands commences at a very early period, whilst in others they are not affected until the disease is far advanced. Most commonly those glands swell which lie in the immediate neighbourhood of the parotid gland, or lower jaw. In two cases, I found a small hardened gland close to the

* See Plate I.

optic nerve ; in a third case, glands were found near the nose, and on the superciliæ ; and, in another case, a diseased gland was found adhering to the os malæ, within the margin of the orbit.

2.—*Appearances on Dissection.*

ON dissection it is found, that not only the contents of the eye-ball, but that the optic nerve, and in many cases the brain itself, are all involved in the disease, exhibiting some very remarkable alterations in structure.

The retina becomes so completely changed, that in no instance could I detect any remains of its natural appearance ; and a tumor is formed in the posterior chamber, extending from the entrance of the optic nerve, forwards, in such a manner as to displace and promote an absorption of the vitreous, crystalline, and aqueous humours. When this new formed substance is small, I have seen, in some

cases, the choroid coat pushed before it, appearing like an irregular shaped bag, containing vitreous humour, the quantity of the humour varying according to the bulk of the new formed substance. In some cases where a *fungus* has been thrown out exterior to the cavity of the eye-ball, the choroid coat cannot be distinguished, either on account of its being intermixed with the general diseased mass, or from its having been altogether absorbed. In some cases, the choroid coat is found in its natural situation, having no attachment, or apparent connexion with the tumor contained within it. I have also observed the choroid coat remaining unchanged in one part of the globe of the eye, whilst at another part it was displaced, and the tumor adhered firmly to the sclerotic coat. The choroid coat has generally a redder colour than natural, and, in some instances, portions of it are increased to five or six times the natural thickness. Little alteration is ever to be perceived in the structure of the sclerotic coat ;

neither its thickness nor vascularity is ever sensibly changed, though, in many instances, the new formed substance has been found closely and inseparably adhering to it. The humours of the eye disappear as the bulk of the morbid growth increases; and when it has burst through the sclerotic coat or cornea, they are generally altogether destroyed.

The morbid growth itself has, in almost every instance, more or less of the appearance of *medullary matter*. It is chiefly composed of an opake, whitish, homogeneous substance, having the same degree of pulpy softness and tenacity with brain. Like brain, it becomes a soft pulp when exposed for a short time to the open air, mixes readily with cold water, and dissolves in it, and it becomes firmer and harder when boiled, or when immersed in alcohol or acids. When the softer parts are washed away in water, or when the mass is forcibly compressed, the more firm and solid parts remain. These consist of a filamentous substance, resembling

cellular membrane, which varies in its quantity and in the closeness of its texture*.

The consistence of the tumor varies, to a certain extent, in different cases, and in different parts of the same tumor, being in some not much firmer than common custard, whereas in others it is more firm than the most solid parts of a fresh brain.

Bony matter has also been found in some of the tumors, and this generally appeared in the form of small gritty particles.

The colour of the tumor is subject to considerable variety ; most commonly, it has exactly the colour, as well as the consistence of brain ; sometimes a portion of it is redder, and has more of a fleshy appearance, and sometimes another portion resembles a clot of blood. I have also seen it of a dark brown colour, and, in one instance, both the tumor within the cavity of the eye-ball, and that exterior to it, were tinged of a deep black colour, only a few greyish-coloured

* See Case I.

streaks being interspersed through the dark mass. In this case the dark colour was so remarkable, that I bestowed great pains, in order to discover, if possible, the cause of such a singular appearance; and, from all that I could observe, I at first conceived that it was produced in consequence of a morbid secretion of the black pigment. By an accurate comparison of the two substances, when viewed through a microscope, they appeared quite analogous. They soiled the fingers or paper of the same dark-brown colour as the black pigment, and communicated to water the same tinge. After the tumor was macerated for some time in water, a great part of the colouring matter was dissolved, and the solid substance which remained was similar, both in its general appearance and texture, to the tumors in the other cases, or to a piece of brain. On the death of the patient, however, all these hypothetical speculations were overturned, as an examination of the body after death showed that the liver was

also affected with the same disease, the tuberculous masses which were formed in it being composed chiefly of the same dark brown medullary matter *. In a case mentioned by Mr Ford, in the first volume of the London Medical Communications, which seems to be an example of the disease which we are now considering, “the tumors of the eye were converted into a black gelatinous substance,” which was, in all probability, very analogous, if not similar, to the matter which composed the tumor in the case above alluded to †.

The morbid alterations which take place in the *optic nerve* deserve to be particularly taken notice of.

In some cases, the nerve retains its natural form, becoming thicker, much firmer and harder than natural, of a brownish ash-colour, and losing that tubular appearance which is observed in the healthy nerve with the naked eye ‡. In other examples of the

* See Case XVI.

† See Case XII.

‡ See Case I.

disease, the optic nerve, besides being altered in its structure, is split into one or more pieces, the morbid growth filling up the intervening spaces, surrounding the different portions of the nerve, and forming one connected mass with the contents of the eye-ball. The divided portions of the nerve lose entirely their natural structure and colour, becoming soft and pulpy, and sometimes of a deep yellow hue*. In some cases the nerve has a flesh colour, and more of the texture of sound liver. In many no distinction can be made between the *neurilema* and medullary portions †; whilst in others changes take place in the one which are not observed in the other ‡. In the case formerly mentioned §, where the contents of the eye-ball and exter-

* See Case III. † See Case XVI.

‡ Reil, who is one of the latest authors who has accurately described the intimate structure of the nerves, has distinguished two parts of which they are composed; 1st, the *neurilema*, or membrane which contains the medullary matter; and, 2d, the medullary matter itself, or *medulla*.

§ See Case XVI.

nal tumor had a very remarkable dark appearance, the neurilema remained unchanged, but the medullary portion of the optic nerve had the same dark-brown colour, as far up as the nerve had been divided, in the extirpation of the eye-ball. After the patient's death, which was nearly five months after the operation had been performed, it was found, on dissection, that the same singular black appearance extended along the medullary portion of the optic nerve, to beyond the union of the two nerves ; and what is an important fact to the physiologist, this case proved, in a very striking manner, that the optic nerves do not decussate each other. The nerve of the *right* eye arose from the right side of the brain, and was healthy all the way to where it formed the retina, whereas the *left* optic nerve was black, from the place where it had been divided during the operation of extirpating the eye-ball, to beyond the union of the two nerves.

Most of the foregoing observations were made from the examination of eyes which

had been extirpated during life, in hopes of stopping the progress of the disease; opportunities are seldom met with of examining the optic nerve within the cranium in its early stages. I have already mentioned that the disease appears to begin in the retina; at least the retina has been found changed in its structure, in all those cases where the optic nerves were diseased, and also in others where the disease had not extended to them. There is only one case with which I have become acquainted where neither the retina nor optic nerve appeared to be changed in its structure*. In one eye of this patient, the retina was completely changed, and in the other a "whitish curdly substance" was found occupying part of the place of the vitreous humour, lying contiguous to the sound retina.

When the optic nerve is diseased, the alteration in its structure generally extends as far up as its junction with the nerve from the opposite side. In many cases it extends further,

* See Case XI.

the thalamus being converted into an irregular soft pulpy mass, some parts of which resemble natural brain; others are mixed with blood; and large cavities filled with blood are occasionally found between it and the adjacent part of the brain, or in the substance of the tumor itself.

In some cases, too, the membranes of the brain have appeared altered from the natural structure. In one instance*, there appeared, on the external surface of the *dura mater*, two dark red coloured spots; and two spots similar to them were also observed in the corresponding portions of the *pericranium*. Between the tunica arachnoides and pia mater there were numerous white spots, scattered in a very irregular manner over almost the whole surface of the brain, which, when cut into, were found to be small bags, or abscesses, containing a viscid white fluid like cream. An appearance somewhat simi-

* See Case II.

lar to this is taken notice of in the case related by Mr Ford *.

WHEN any of the *absorbent glands* are enlarged, they are found converted into a substance, resembling, in every respect, that which composed the tumor of the eyeball and brain ; and the medullary-looking matter is contained in a distinct capsule of firm cellular membrane. In some cases, the glands ulcerate before death, and form a very unhealthy sloughy ulcer †, but most frequently the patient dies before the skin covering them is destroyed. When ulceration of the skin takes place in a primary tumor of this kind in the extremities of the body, a fungous mass is soon formed, projecting through the ulcer. I have never observed, however, in any case, a fungus arise from a contaminated absorbent gland, after the skin covering it had ulcerated.

* See Case XII.

† Plate I. fig. 1.

3.—*History of the Disease.*

ONE of the most striking features of this disease is the early period of life at which it occurs; for in a list of twenty-four cases, which have come to my knowledge, twenty of them were under twelve years of age. In illustration of this important fact, it may be proper to mention, in this place, an observation of the celebrated M. Dessault, that “one third of the patients on whom he operated at the Hotel Dieu, for *carcinoma* of the eye, were under twelve years of age*.” “Le carcinome de l’œil attaque tous les sexes, se manifeste à tous les âges; cependant il semble plus que les autres tumeurs de cette nature s’attacher à l’enfance. L’observation l’a démontré à l’Hôtel Dieu, où plus du tiers des malades qu’y a opérés Dessault étoient au dessous de 12 ans.” In the account which Bichât has given in Dessault’s works, in the

* Vide Oeuvres Chirurgicales de Dessault, par Xav. Bichât, tom. ii. Paris, 1801.

chapter relating to carcinoma of the eye, he has not attempted to point out any difference of the disease in children and in adults, but has given an account of the most striking symptoms attending the true *cancerous* affection of the organ ; neither does he make any observations on the relative success of the operations at these different periods of life.

The early period of life at which this disease most frequently prevails, is a striking proof of its dissimilarity to cancer, for cancer is, for the most part, confined to those advanced in years.

When the fungus hæmatodes takes place in children, they are generally found to have entirely lost the sight of the affected eye, before it is remarked by the parents. In a great proportion of the cases, however, the history of which I have been able to collect, the patient had received a blow, which brought on inflammation ; and after the inflammation continued, in some only a few days, the coloured substance became perceptible at the bottom of the eye. In those cases

where the eye receives no injury from external violence, a little fulness merely of the vessels of the white of the eye is the first symptom perceived; and the iris is sometimes full of vessels, and changes in its colour, whilst, at the same time, the pupil is much dilated, and immoveable. The child seldom complains of much pain, but sometimes appears languid and feverish.

When the disease attacks those advanced in life, it commonly begins without any apparent cause, though I believe, that in them it also sometimes takes place after a blow on the eye. As in children, it begins with a slight redness of the white of the eye, and, at the same time, the patient sees objects indistinctly. This redness and indistinctness in vision increase slowly; and the patient at last begins to complain of an uneasy aching pain in the head, which often becomes most agonizing, particularly during the night, and it seldom suffers any diminution until the eye bursts, and the humours are discharged.

In most cases only one eye has been affected with the disease. In the cases mentioned by Mr Ware *, by Mr Hey †, and in that of Mr Saunders ‡, a short time before death a discolouration appeared in the second eye ; but in none of those cases was there any mark of disease found in the optic nerve after death. In Mr Saunders's case, the retina was converted into a diseased mass, though the nerve remained sound ; but in that by Mr Ware and Mr Hey, the retina is particularly mentioned as having been observed quite sound. From this a very important practical conclusion may be deduced, viz. that if the disease originate in the retina, or in some part of the posterior chamber, and be confined to it alone, in its first stages, an early extirpation of the diseased eye might save the life of the patient.

From the account which has now been given of the symptoms, morbid appearances, and history of the Fungus Hæmatodes in

* See Case XV.

† See Case XI.

‡ See Case VIII.

the eye-ball, a general knowledge may be obtained of that very remarkable change of structure in this organ. In order, however, to explain more fully the peculiar nature of this disease, and to illustrate some of the most striking facts relating to its history, I shall mention, in detail, some of the most important cases which have come within my own observation, and extract and refer to the works of others, for an account of some cases, which, though they have been considered as cancerous affections of the eye, appear to me to be examples of the same disease.

CASE I.

THIS patient was a female child, about three years of age, whose parents said, that, fourteen days before I saw her, she had got a blow on the left eye, but that, previous to the accident, the eye had appeared sore and painful.

On examining the eye, it was slightly inflamed, and had the peculiar expression of a blind eye. But what appeared remarkable, was, that the pupil was much dilated, and that behind it, and at the very bottom of the posterior chamber, there was a tawny, yellow-coloured flaky-looking mass, the surface of which was unequal, and formed into folds, and a large blood-vessel, which I supposed to be the central artery of the retina, was seen running across the pupil. The anterior chamber had lost its natural transparency, apparently from the aqueous humour being slightly tinged with blood. The child appeared to be in good health, but occasionally complained of pain in the eye, which was considered as no more than what could be readily accounted for, from its apparent degree of inflammation. The case appeared to me so unusual, that I was much at a loss to form even a conjecture of its nature; I thought it, however, not improbable, that the same appearances might have been produced from an effusion of lymph at the bottom of the posterior chamber. With a view of alleviating the inflammatory symptoms, opiates were employed as an external application,

and they produced the desired effect. The inflammation, however, soon afterwards returned, and the child complained of so much pain, that leeches and fomentations were thought necessary. The symptoms, however, continued to suffer but slight alterations, and in eight months, from the first appearance of the disease, I made the following report. "The brown-coloured body which appeared at the bottom of the posterior chamber, has gradually moved forwards, and has now come upon the same plane with the iris. It has all the appearance of a layer of lymph. The eye-ball appears enlarged, and is irregularly tumefied; the sclerotic coat has lost its shining, pearly white appearance, and is of a dark blue colour; the pupil is so much dilated that the iris is contracted to a narrow band. She complains of a constant uneasiness and pain in her eye, with an inability to move about and amuse herself."

From this period, the eye-ball increased in bulk, and in a few weeks the iris and the brown-coloured mass came in contact with the transparent cornea. In other four months the tumor became so big that the eye-lid could not cover it. It had a very irregular form, and no line of division could be perceived between the cornea and sclerotic coat, except by a number of varicose vessels which covered the sclerotica, and terminated by a kind of ring of anastomoses at the circumference of the cornea; at this time, also, a small spot of purulent matter was observed behind the cornea, the cornea ulcerated, and in a few days a small tumor rose out from the ulceration. The tumor had a great disposition to bleed, and, from the effusion of coagulated blood, the upper eye-lid and ball of the eye were kept always glued together.

The disease now began to assume such a formidable appearance, that it was thought advisable to remove the eye-ball, as the only chance of saving the child. This I per-

formed in the usual manner, and nothing particular occurred during the operation.

Dissection of the Eye-ball.

The eye-ball was afterwards carefully dissected. Its shape was of a cylindrical form, but the surface irregular; the whole anterior chamber was destroyed, and occupied by a soft fungous mass, having no defined structure*.

The optic nerve (*a*) was remarkably firm and hard, and of a cineritious colour, much darker than natural. It was also evidently increased in size, though it retained its round form. On one side of it, and lying close upon the eye-ball, adhering to it firmly, there was a hard mass, of the bulk of a garden pea, which was apparently an enlarged lymphatic gland (*b*). An incision was made through the sclerotic coat, which was not altered in its structure, and was as readily separated from the choroid coat as in the natural state. The choroid coat was not of its usual dark brown colour, but had more a mixture of red; a change which took place, probably, on account of an increased vascularity. I next attempted to separate the choroid coat from the retina, but found that it adhered to a solid substance, on the surface of which I could distinguish nothing like the nervous expansion. A vertical section was now made through the eye-ball, so as to divide it and the optic nerve into two equal portions. It then appeared that the posterior chamber, instead of containing its humours, was completely filled with a solid mass, which had very much the general appearance of a portion of brain. Some parts were pulpy, and easily washed away in water, leaving behind a filamentous substance, like loose cellular membrane. On tearing the mass, some parts were much harder and firmer than

* See Plate II. fig. 3.

thers, and towards one part of it there was a great quantity of particles of a gritty osseous matter (*c*). All that part of the tumor which occupied the posterior chamber, had very much of the general character of medullary matter; but the portion anterior to it, which formed the external fungus, had more the appearance of a soft mucous polypus, and was as easily torn as a piece of jelly. The optic nerve appeared of one uniform, firm texture, and the division between the neurilema and medullary portions of it could not be detected. The sclerotic coat had, throughout, its natural thickness and structure (*dddd*).

There was a considerable degree of swelling of both eyelids, and a discharge of matter from the cavity of the orbit after the operation; but in about three weeks the swelling abated, the discharge stopped, and the child's health was much improved. About six weeks after the operation, she complained suddenly of a pain in the orbit, and on the following day, there was an evident elevation of the eye-lids. The swelling of these gradually increased, and the tumor contained within the orbit soon became so large as to project beyond them.

About this period, also, a small glandular swelling appeared on the cheek, immediately opposite to the ear, and two smaller ones underneath the lower jaw, on the same side*.

The tumor of the orbit, and the glandular swelling, gradually afterwards increased in size, her general health failed, and, about six months after the operation, she died, being for some time before her death in a state of stupor, speaking none, and expressing no signs of pain.

* See Plate I. fig. 2.

At the time of her death the tumor of the orbit was about the bulk of a goose-egg; two-thirds of it was covered by the upper eye-lid, much distended, and the other part of it was an irregular shaped mass, of a dark colour, and so fetid as to resemble a piece of corrupted flesh *. The tumor anterior to the ear was much swollen, and the integuments discoloured. The glands under the jaw had also acquired a very considerable bulk.

With the assistance of Dr Barclay, a careful dissection was made of the brain, and contents of both orbits.

Dissection after Death.

On laying open the lateral ventricles of the brain, from four to five ounces of a transparent colourless fluid flowed out. The posterior portions of the optic thalami had their natural appearance; but at the place where the optic nerves unite in the *sella turcica*, a tumor was formed about the bulk of a chesnut. This tumor was nearly globular, its surface a little unequal, but smooth, and its colour rather more yellow than common medullary matter. On removing a delicate transparent membrane, which surrounded the tumor, the parts within were found to be a pulpy-looking matter, of a very white colour, and of an equal consistence. It turned rapidly softer by being exposed to the air, and was readily dissolved in water. Nothing resembling nerve could be found in it; although the optic nerves were seen entering it at one extremity, and passing out at the other, to go into the *foramina optica*. At the place where the nerve of the left side had been divided, in removing the brain, a similar matter seemed to have issued from the divided extremity. Having sawn off the orbiter plate of the frontal bone, the contents of the orbit were removed. The

* See Plate I. fig. 2.

optic nerve could be traced a little way, and suddenly expanded, forming, as it were, the nucleus of a mass of diseased structure, composed of muscles, blood, adipose substance, and a number of rounded masses, which had a pretty firm, cellular, external covering, but contained a substance exactly resembling that of the tumor in the *sella turcica*, and in the posterior chamber of the eye-ball.

The tumor on the cheek, anterior to the ear, had no adhesion to the integuments, or parts surrounding it, and had every external character of an enlarged lymphatic gland. An incision was made into its substance, and it was found to contain a pulpy matter, similar in every respect to that of the tumor of the brain. One of the glands below the lower jaw was carefully dissected out. When removed, it had all the general appearances of a common enlarged gland; but when its external covering of firm cellular membrane was cut into, the substance of the tumor was found to be composed of a matter exactly resembling that which was found in the other swellings.

CASE II.

IN the second case, which I had an opportunity of seeing, the disease appeared also in a girl of about twenty months old; and, during its whole progress, the symptoms very much resembled those which were observed in the former patient. There was the same brown or yellowish colour observed in the bottom of the posterior chamber, accompanied with a great dilatation of the pupil, and total want of vision. Although the opaque body could

be observed to be gradually approaching the iris, as the disease advanced, yet it existed seven months before the eye-ball began to be altered in its shape. At last, it became so large that the eye-lids could scarcely cover it; the conjunctiva became inflamed, and formed into a fold at the inferior eye-lid; the anterior chamber became of a dark yellow colour, and the opake body approached very close to the cornea, having the same deep yellow tinge as when it was first observed.

The failure in the operation of extirpating the eye-ball in the former case, after the cornea had ulcerated, and a fungous tumor grown from it, suggested the idea of performing the operation at a more early period of the disease. Accordingly I extirpated the eye-ball. The operation was performed in the manner recommended by M. Dessault *, by dividing, in the first place, the connection of the two tarsi at the external angle of the eye, so as to liberate the eye-lids, and facilitate the extirpation. After removing the ball, along with a firm mass adhering to the optic nerve, I could trace a continuation of this substance with my finger, passing through the optic foramen into the cavity of the cranium; so that no further attempt was made to remove any more of the diseased parts.

Dissection of the Eye-ball.

There was a quantity of aqueous humour, tinged of a pale yellow colour, discharged through an opening made in the cornea by a ligature which was passed through it, in order to facilitate the extirpation of the diseased eye. The eye-ball, after it was removed, did not appear to be much altered in its general form. A fleshy looking mass, about

* Vide Oeuvres Chirurgicales de Dessault.

the bulk of the last joint of the little finger, so completely surrounded the optic nerve, and adhered so firmly to it, and to the adjacent part of the sclerotic coat, that it could not be removed, so that the nerve could be traced passing into the eye-ball. An incision was made through the eye-ball, and through the mass inclosing the nerve, dividing them into two equal portions *. A small quantity of a humour, resembling vitreous, flowed out, whilst the incision was made. This section shewed the optic nerve (*aa*) and tumor (*b*) to be distinct from each other, from a difference in their colour. The nerve was a little larger and firmer than natural, had changed its colour, and was converted into a dull, flesh-coloured substance, having none of the characters of a healthy nerve (*aa*). After the nerve entered the sclerotic coat, nothing like retina could be distinguished, but it seemed to swell out, and form a mass resembling that which surrounded it externally. This mass filled the posterior chamber in such a manner, that the choroid coat was pushed from its natural situation towards the anterior chamber, in the form of an irregular shaped bag (*ccc*). The section of the tumor represented it to be composed as if of two lobes (*dd*), separated from one another by a fibrous band, which extended from the central part of the optic nerve, and terminated in the choroid coat; and it was probable that this was the blood-vessels, or central artery of the retina. Besides the two distinct lobes, thinner portions of the tumor (*eee*) extended forwards on each side, as far as the cornea, so that the choroid coat was inclosed within the diseased mass, as in a bag. The tumor could be separated from the sclerotic coat (*ff*) at every part, except near the entrance of the optic nerve. There it adhered to it so firmly that it could not be dissected from it without being torn. The different parts of the mass

* See Plate II. fig. 1.

much resembled common medullary matter, intersected in an irregular manner with cellular fibres, which rendered it rather firmer, and less easily divided than brain.

The swelling and inflammation soon abated after the operation, but in ten days she had several violent convulsions. These never returned, but in a few days there was an evident tumor formed within the orbit. Twenty-five days after the operation, she died, having had violent symptoms of deranged functions of the brain. The orbit had gradually become filled with a tumor which distended the eye-lids, but did not project beyond them. Her strength and flesh gradually wasted, and, for some days before her death, she was observed not to see distinctly with the left eye.

Dissection after Death.

The parts were examined after death; and I am indebted to Dr Thomson for his able assistance in the dissection, and in drawing up the following account of it.

On removing the scalp, a number of white spots appeared on the surface of the cranium, some of them nearly the breadth of a sixpence, and all of them of a circular form. Two were of a deep red colour, and were rough and unequal to the touch; the pericranium covering them was thicker than natural, and more easily separable from the bone. On the external surface of the dura mater there were two dark red-coloured spots, corresponding to those observed on the external surface of the cranium. They were formed by a spongy-looking substance, which was a little elevated above the surface of the dura mater, and appeared to be organized lymph. On removing the dura mater, an effusion of a serous fluid was found to have taken place between the tunica arachnoides and pia mater.

In the same space, and scattered in an irregular manner over almost the whole surface of the brain, there were numerous white spots, varying from the size of a pin's head to that of a large pea. When cut into, they were found to be small bags, or abscesses, containing a viscid white fluid, somewhat like cream. The lateral ventricles contained a little more water than usual.

The *plexus choroides* was much thickened, and that part of it which is vascular, and has been regarded as hydatids, was considerably swelled, and converted into a greyish white substance like *brain*. On removing some of the cerebral substance contiguous to the thalamus of the optic nerve of the right side, a cavity was brought into view, containing a considerable quantity of black blood, and a tumor could be felt in this cavity, composed of a firm substance, about the bulk of a hen's egg, the upper surface of which formed the bottom of the cavity. As this tumor appeared firmly connected with the tumor in the orbit, the bones were sawn through, so that the whole parts could be removed in one mass. After having been preserved in spirits till they acquired consistency, a perpendicular section was made through all the parts, and the following were the appearances.

The tumor of the encephalon and that in the orbit were connected by the optic nerve. The posterior part of the tumor was soft, and resembled, in every respect, common brain, but the rest of it consisted of a reddish, and apparently very vascular mass, of a firm, but equal consistence, so that, on a superficial examination, it very much resembled *liver*. Nothing resembling nerve could be distinguished in any part of the mass, until it approached the optic foramen, at which point there was a kind of very indistinct collection of the nervous fibres going to form the nerve. The nerve emerged from the tumor

rather larger than natural, but not very remarkably changed in structure ; and that portion of it which passed through the bony canal seemed to have been prevented from growing larger, from the resistance of the bone. The tumor contained in the orbit was of a rounded form, about the bulk of an eye-ball, and resembled the firmer portion of the other tumor. The optic nerve could be traced a little way into the tumor contained in the orbit, and terminated abruptly at that part where it had been divided in the operation of extirpating the eye-ball, being as it were the centre of the diseased mass.



In the above sketch, which Mr Russell was obliging enough to make for me, the different parts displayed in the section of the tumors are detailed with much accuracy and precision. *a* Is the posterior part of the tumor of the encephalon, which was soft, and its edge rugged. At *b* there was something like nervous fibres, and at *c* the nerve appears of a larger size than natural, and that portion between *c* and *d* passed through the osseous canal. *e* Is the tumor contained within the orbit ; and the optic nerve is seen passing into its substance, and terminating (*f*) where it had been divided when the eye-ball was extirpated.

CASE III.

THE patient, the subject of this case, was under the care of Dr Brown, one of the surgeons of the Royal Infirmary of Edinburgh, and, with his permission, I am now enabled to lay it before the public. It illustrates, in a striking manner, the remarkable features of this formidable disease, and more particularly, the changes in the structure of the optic nerve.

The girl was two years of age, and the father, a very intelligent man, gave the following history of the complaint.

Nine months ago, the right eye was accidentally perceived to have lost its natural colour, and to have that greenish tinge observed in the eyes of cattle. During three months it underwent no change, unless that the green colour became more apparent. Soon after this, the whole anterior chamber lost its natural transparency, and became so turbid, that the different parts contained in it could not be distinguished. During five months, the turbid state of the anterior chamber continued, and the eye-ball became in some degree swollen; at last, some purulent matter appeared in the anterior part of it, and was discharged by an ulceration of the cornea. After this took place, a tumor began to grow through the ulcerated surface, and the eye-ball lost all its natural form. The tumor gradually became so large as to project a considerable way beyond the margin of the cavity of the orbit, and spread open both the eye-lids. It had an irregular form, being composed of several rounded masses, separable

a little way from one another, and adhering to one central nucleus. The surface of the different parts was smooth, except in those places which were covered with coagulated blood. There was a discharge of a thin fetid sanies, and it bled on the slightest friction. No vestige of the eye-ball could be traced. The child was fretful and complaining, but its general health had not suffered much. As the extirpation of the eye-ball was resorted to as affording the best chance of a cure, the operation was performed by Dr Brown. In extirpating the tumor, it was found to be connected with the optic and sphenoidal holes, by a firm mass, and this was cut off in order to remove the eye-ball.

Dissection of the Eye-ball.

Nothing could be seen resembling the natural structure of the eye, by an external examination of the diseased mass. The sclerotic coat and optic nerve were completely enveloped by a tumor, about one inch in diameter, having a firm resisting feel, and an irregular knobbed shape; and, on examining the part of the tumor where it had been cut through during the operation, a portion of it had some resemblance to the optic nerve. An incision was made through the whole mass, so as to divide it and the nerve into equal portions *. This section shewed an imperfect outline of the sclerotic coat(*aaaa*), the tumor growing from the whole of its internal surface, and the large mass exterior to it, and surrounding the optic nerve. The nerve was completely imbedded in the mass of tumor. It appeared to be split into two parts, the tumor within the eye-ball and that exterior to it being joined with one another, and forming, as it were, one mass, separating the two portions of nerve. One of the

* See Plate II. fig. 2.

parts of the nerve adhered to the sclerotic coat (*b*), and the other appeared detached from it, and was, as far as could be observed, completely enveloped in the tumor (*c*); the external tunic of the nerve was of a white colour, and adhered firmly to the diseased mass; the internal part of the nerve consisted of a soft porous substance, like some of the *fungi*, and it was, throughout, of a yellow colour, in some parts paler, and in others, of a deep gall-stone hue. Every part of the tumor had a *medullary* appearance, and adhered all round both to the external and internal surfaces of the sclerotic coat.

Five days after the operation, a considerable degree of redness and swelling appeared over the parotid gland, which subsided by the application of leeches. Dr Brown informed me, that some weeks afterwards, the tumor had again begun to grow from the orbit, and the swelling on the cheek to enlarge, soon after which the child died, and, as this happened at a distance from town, no opportunity was had to inspect the brain.

CASE IV.

THIS patient was under the care of Mr Astley Cooper, who had the politeness to send to me the drawing of it, from which the first figure in Plate I. is copied. It is a very striking example of the enormous size the absorbent lymphatic glands sometimes acquire in this complaint. The disease had advanced so far before the girl was put under Mr Cooper's care, that no attempt could have been made to remove the diseased part with any chance

of relief. The disease was therefore allowed to proceed uninterrupted ; and before the patient's death, the tumor that is seen in the drawing growing out of the orbit, and the prodigious mass of glands over the lower jaw, were in a complete state of mortification. This prevented Mr Cooper from examining the parts satisfactorily after death ; but from the diseased state of the brain, and particularly of the optic thalami, and also from the external appearances, there can be little doubt of the true nature of the disease, and of its analogy to the other cases.

CASE V.

THIS case was communicated to me, as a singular instance of disease, by Mr Smith, surgeon at Appin, in Argyllshire, and affords another striking instance of the fungus hæmatodes of the eye-ball. Mr Smith's own words give a clear and very distinct account of the case. "The disease had gone on to a great extent before I saw it ; but I shall relate what I could learn of its history. The patient was a boy about the age of eight or nine years. The disease made its appearance towards the beginning of August 1805, with an inflammation in the eye, and a violent pain in the head, and particularly in the forehead of the same side of the affected eye. Perhaps it is proper to mention, that at this period the most of the poor people in the neighbourhood had a degree of ophthalmia among them. As the parent of the child was poor, no medical assistance was at this time called for, and he applied a blister to the temple, and a solution of the acetite

of lead to the eye. By these means the inflammation abated, but the pain in the forehead and eye continued as violent as ever. It was observed, too, that the eye was beginning to swell, and, on looking at the pupil, a white speck appeared at a distance behind it. The eye now began to swell rapidly, and to be forced out of its socket. The child was seized with frequent startings at night, a total want of sleep, an inclination to vomit in the course of the day, and an aversion to all animal food. It was at this period, towards the latter end of September, that I was called to see him. I found him greatly emaciated, with the eye completely forced out of the orbit. The appearance which it had was that of a large ulcerated tumor of a livid colour, covering one half of the cheek, discharging a sanies, having a fetid smell. I ordered bark, opium, port wine, and dressed the eye with common ointment, mixed with a little of the red oxide of quicksilver. The tumor increased daily, till at last it covered the whole cheek, and extended over the chin. In this state it was supported by a bandage, but if the bandage at any time came off, it was attended with most excruciating pain. As Mr ——— seemed a good deal interested, I desired that another medical gentleman should be called in; which being done, I suggested the necessity of having it extirpated. To this, however, the parent would not consent, and the unfortunate child *died* early in November, in great misery. The size of the tumor, as far as I recollect, was from ten to eleven inches in circumference."

CASE VI. AND VII.

Mr JOHN BURNS, of Glasgow, whom I have already mentioned as being the first person who has given a detailed description of the disease in the extremities, has been so obliging as to favour me with the history of two cases of the disease in the eye-ball, which appear to be quite analogous to those already mentioned.

CASE I.—“The patient was a girl of eleven years of age. The disease first began with enlargement of the anterior part of the eye, an increased discharge of tears, and sensibility to light. Very soon the eye became red and painful, the cornea more prominent, with a discharge of fetid matter from the surface.

“For some months there was little change, but at last the eye was perceived to enlarge. Then the cornea gave way; and in this case, from the bloody lymph discharged, the eye shrunk for a little, but very soon the fungus shot forth, and then, for the first time, the pain became considerable, and a great quantity of very fetid matter was daily discharged. The health gradually suffered, and both the surgeons and the patient, being tired of unsuccessful applications, agreed to extirpate the tumor. The operation was accordingly done, but the lacrymal gland was left in the orbit, though for what purpose I cannot tell. Every thing went on well for a time, and the girl left the place, but I believe died some time after, though in what manner I did not learn.’

CASE II.—“The second case was a boy six years of age. In infancy something like a speck was observed in the cornea, and very soon the ball of the eye began to swell, but without much pain, although it occasioned loss of sight. About half a-year before the operation of extirpating the eye was performed, the swelling increased, burst, and yielded a fungus, and very soon the eye resembled a cauliflower. An adhesion took place between the eye-ball and the palpebræ. The eye was cut out, and the patient to all appearance cured in three weeks, the other eye being sound and strong. But in two years after this he returned to town with a large fungous ulcer on the temple, which had begun at the outer canthus of the eye, and this at last carried him off.”

CASE VIII.

THE following case was communicated to me by Mr Saunders, Demonstrator of Anatomy at St Thomas's Hospital, and surgeon to the City Dispensary for the diseases of the eyes. It contains an accurate account of the history and appearance of the fungus hæmatodes on dissection, in its advanced stage in one eye, and at a more early period in the other

Case of Master E. L.

At the age of nine months the disease commenced in the left eye, which, when I first saw him, although not inflamed, was vascular, and a little enlarged. The iris, in particular, was full of red vessels, and the pupil was very large and

fixed. The retina appeared like a concave silver plate, in the posterior part of the eye. This eye was blind, but he suffered little or no pain, and was, in other respects, in good health. At the age of fifteen months, the right eye was attacked, and exhibited similar appearances. The left eye was now much changed; the crystalline lens had dropped from its situation, and lay in an opake state at the inferior part of the vitreous humour. About three months before his death, the left eye, which had been for some time very irritable, suddenly enlarged, and began to protrude beyond the eye-lids in the form of a red mass, which ultimately acquired the size of a large apple. About a fortnight before his dissolution, he fell into a state of stupor, with occasional screaming. He soon became frequently convulsed, and died in one of these fits. I examined the right eye a few days before his death, and observed, that what had previously exhibited the appearance of a concave metallic plate, in the situation of the retina, had advanced, and apparently occupied, every part behind the iris. It seemed to touch the iris, and the eye gave the appearance of a white cataract with a dilated pupil. This was, however, a deception, as it only occupied the space of the vitreous humour; the crystalline lens being in its natural situation, and transparent,

Dissection after Death.

The tumor of the left eye being cut in various directions, was found to consist of a hard fibrous vascular mass. None of the original parts of the organ could be distinguished. The head being opened, it was ascertained that the disease had extended in the course of the left optic nerve to the ganglion, the whole of which was converted into a bloody tumor, too soft to analyse by the knife, and which melted, as it were, under the touch, although the examination was made shortly after death. The ventricles were unnaturally

large, and full of water; the ganglion was altogether diseased, being converted into the tumor already mentioned; but the left optic nerve was sound, from the ganglion to its thalamus; and the right optic nerve was sound in each side of the ganglion.

In addition to the cases which have been already given, I think it proper to take notice of some others, recorded by different authors; and although the authors alluded to seem to be unacquainted with the peculiar nature of the disease, they have yet described the cases accurately. As those cases not only illustrate the most striking features in the history of the disease, but lead to important practical conclusions, I shall quote some of them at considerable length, more particularly such as are in works not easily accessible, or which are scattered among descriptions of other diseases.

The first two cases were put into my hands by Mr Wishart, who had the politeness to extract them from the *Ophthalmologische Bibliothek*, a German periodical work. They are entitled, "A Descrip-

tion of a remarkable Morbid Change of the Eye-ball, and of the Organic Structure connected with it, by M. Schmidt, of Vienna.”

CASE IX. AND X.

THE principal features in the histories of the cases are as follows :

The one individual was a girl, two years old, (a soldier's child), the other a boy about five years of age, the son of the Manager of the Porcelain Manufactory in Vienna. Both of the children were *scrofulous*, and had a tendency to rickets. In both, the change began about the beginning of the winter 1801, in the form of an ophthalmia.

I had not an opportunity of observing the course of the ophthalmia ; nor did I see the children till after the exophthalmy, or swelling of the eyes, had taken place.

The exophthalmy was accompanied by constant restlessness, want of sleep, loss of appetite, dry warm skin, quick, small pulse, continual pain of the one half of the head, the stools sometimes scanty and sometimes copious.

All the coats of the protruding eye-ball were enormously swelled, and of a dark red colour, the cornea destroyed, the iris covered with a layer of purulent matter, and the eye-ball as hard to the touch as a billiard-ball. The humours were, by degrees, discharged ; the crystalline lens in both cases fell out ; and the vitreous humour gradually disappeared. But the tumor of the coats of the eye increased the more in proportion as the humours were evacuated. The upper and under eye-lids were so completely displaced by

the pressure of the flesh-like mass, into which the coats of the eye was converted, that neither of them could be discovered.

The soldier's child had been left to itself till the above-mentioned period. The boy was attended by physicians, one of whom, when the exophthalmia was just forming, made a puncture into the eye, with the intention of evacuating the contained fluid, or pus. After the incision, the change went on more rapidly, and acquired a more enormous bulk than it ever attained in the soldier's child.

It was evident, that the progressive enlargement of the eyes, and conversion into *sarcomas*, was in the inverse proportion to the nourishment of the body of both children. The more the sarcoma increased, the more remarkable was the wasting of the body. The boy, in whom the mass acquired so great a bulk, was, however, much better attended to, in respect to diet and nursing, than the soldier's child.

In both children the question arose, whether the diseased eyes should be extirpated or not? In both, an operation was contraindicated by the high degree of direct debility of the vital powers, as it could not have been performed without a considerable loss of blood. In both it was to be apprehended, that the loss of three or four ounces of blood might bring on convulsions during the operation, which might instantly terminate fatally.

In both cases escharotics were employed. But these remedies were evidently hurtful. At first the *cosmean* powder was tried. It only attacked the sarcomatous excrescences superficially, and the reproduction was much more luxuriant. I then employed a mixture of unslacked lime, nitrate of silver, and soap, in form of an ointment, and applied it partially to the tumor. This mixture penetrated deep. But the more of the tumor I destroyed, the more disproportionately it shot out from the bottom. I say, the more

disproportionably luxuriant was the growth, as, in fact, I never could destroy in a given time as much of the mass, as, in the same time, the root of the mass sent forth anew. It was just as if it had been a polypus which was wounded, for these grow the more luxuriantly the more they are wounded.

As the debility of the soldier's child approached the highest pitch, and local applications completely laid aside, the increase of the tumor stopped, and, instead of the change being always progressive, it now began to be regressive. The dark red fleshy mass began to turn blackish and scurfy on the surface, and at the same time to decay and fall off piece-meal. As one of these decayed layers fell off, another decayed and again came away; and thus it went on, till the orbit was almost completely empty. At the back of it lay a small knot, drawn together, which was the remains of the sclerotic coat. In this state the child died, completely exhausted.

The boy lived six weeks longer than the little girl. In his case also the reproduction stopped as soon as the debility of the living principle reached a certain point. But as the debility became still more considerable, there began, in several parts of the excrescence, a similar destruction or corruption, and the change then became regressive. The mass, however, had lost very little of its bulk, when the boy slipped off, with symptoms of very great debility.

Dissection after Death.

After death the bodies of both the children were carefully dissected by Mr Abendroth, when the following circumstances were remarked:

There were no eye-lashes on the eye-lids. Both cartilages of the lids were melted into skin; the eye-lids quite

shrivelled into folds ; the orbicularis and levator muscles of the upper eye-lid were quite destroyed ; the lacrymal canal quite gone ; a small remains of the puncta. No caruncle or lacrymal gland.

On opening the orbit from behind, there was no trace of any muscle of the eye, nor of the numerous nerves which enter that cavity. There were also no remains of the veins or arteries.

The most interesting phenomena that presented themselves, were the remains of the sclerotic coat, which was contracted into a knob, still connected with the sheath in which the optic nerve runs. But, on opening carefully this sheath, and following the nerve to the knot of the eye, there was scarcely any vestige of nerve to be found. A small quantity of a nearly fluid gelatinous mass was contained in it, which was still more pappy than the first pair of nerves commonly is. The brain, however, was in a natural state, and even the thalamus of the optic nerve showed not the smallest deviation from the natural structure.

In the five year old boy the skin of the upper and under eye-lids was so intermixed, in every direction, with the circumference of the excrescence, and expanded over its surface, that it was easy to perceive the striving of the sound skin to incase the whole tumor.

The *tarsus* in both eye-lids dissolved into skin. But, as the skin was very much expanded, a thin irregular little raised strip appeared, on which, however, there could be discovered no vestige of eye-lashes. The entrance to the lacrymal canal was marked by a pointed pit.

At the upper part of the growth a black firm lump was attached, the remains of the eye-ball, which was nothing but the contracted half dried sclerotic coat.

Around the remains of the sclerotic coat were several

small pits, arising from the falling off of small decayed pieces of the excrescence ; a few scales were still coming away.

The conjunctiva at the nasal and temporal angles presented an interesting appearance, near the commissure. It was converted into a lardy mass, about half an inch thick, and was intimately connected with the general mass.

On opening the orbit from behind, the most attractive appearances were observed.

The whole orbit was filled by the root of the excrescence, and all the parts of the organic structure were so confused and blended together, that even the most skilful anatomist could merely imagine vestiges of the natural structure.

The muscles of the eye were all changed into a firm, horny cellular membrane.

In this horny substance red radiated streaks were perceived,

Neither blood-vessel nor nerve could be recognised. The red radiated streaks were situated exactly in the place where the first branch of the fifth pair, the *oculomotores*, the *abducens*, the *trochleator* ramify.

The abundant cellular substance which lies between the muscles of the eye-ball and of the upper eye-lid, and in the orbit in general, was evidently converted into a bacony mass, extending from within outwards.

The conjunctiva of the eye-ball and the lacrymal gland were converted into a similar mass.

The *optic* nerve here also presented the most interesting phenomena,

On examining the mass from above downwards, and from behind forwards, towards the shrunk knot of the sclerotica, I found this nerve passing through the mass, and in continuity with the remains of the sclerotic coat ; but it was only as large as a fine thread. But when we reflect that the sclerotic coat, which covered the mass externally, was at least two inches and an half removed from the optic foramen,

we may easily conceive what an unusual length this nerve must have assumed, in order to be equally spun out from its usual thickness to so extraordinary a thinness and length. The optic nerve began to become thin as it entered the optic foramen. Within the base of the cranium it had its ordinary size. The thalamus also was unchanged.

CASE XI.

A DESCRIPTION of this case is given by Mr Hayes, in the 3d volume of the London Medical Observations and Inquiries, published in 1767. The following is an abstract of it :

The disease appeared in a girl fifteen months old, and its first symptom was a peculiar colour in the eye, when turned in particular directions, more discernible in the evening and when the light was not strong. The eye afterwards became inflamed, and, what was peculiar in this case, after the inflammatory symptoms abated, the eye-ball diminished more than one half of its natural bulk. After remaining of this small size for ten months, it began to enlarge ; and about this time the other eye began to assume the same peculiar colour behind the pupil which the first one had. It was now proposed to empty the *left*, which was the first affected, with the view of discharging the collected humours, and saving the *right*. After making the incision of the cornea as for extraction, and not being able to see any lens or vitreous humour, the whole cavity was

found filled with a fleshy substance. “ This discovery immediately pointed out to us our error, and the true nature of the case, viz. that it was of a *cancerous* nature.” The whole contents of the orbit were removed; and on dissecting the eye “ we found not the least remains of the humours, nor of any of the coats, but the sclerotica. This was filled in every part, except in the anterior chamber, with a *steatomatous* kind of substance, and a loose spongy flesh, whose fibres had no particular direction. There was likewise a considerable quantity of calcareous earth lodged in different parts of it.” Some months after the operation, the right eye began to increase in bulk, and at last a large fungus grew out from it, pushing before it the two eye-lids. The child now began to vomit her food, was seized with giddiness in her head, and convulsions, and she lost the use of her lower extremities. At last she died, retaining her memory and judgment perfect till within a few hours of her death. The disease in this case lasted during three years.

Dissection after Death.

“ Upon opening the head with Mr Hunter, the following appearances were observed. We found more water in the left ventricle than in the right; on raising the anterior lobes of the cerebrum, the right appeared quite sound, but the left was red, and some extravasated blood lay on the orbital process of that side. We then cut off the right lobe, and laid bare the optic nerve of that side, which we found, in all appearance, perfectly sound; but the left lobe, which was found diseased in its substance, adhered to the optic nerve, internal carotid artery, infundibulum, and the glandula pituitaria, so that we were not able to distinguish any separation of these parts. We, therefore, took out all these parts, with the optic nerves, the right eye, and the tumor in the orbit of the left side, whole and joined toge-

ther. Mr Hunter then inverted them, and examined the optic nerves on their under surfaces; that on the right seemed perfectly sound, through its whole length, but, on the left, what was the optic nerve could not be distinguished from the substance of the anterior lobe and glandula pituitari, which adhere there. He then cut into the tumor, that had lain in the orbital foramen, to see if he could trace it on to the brain, but he could not find any appearance of a nerve: he afterwards began at the union of the optic nerves, to try if it could be traced from thence to the foramen, but it could hardly be said that there was any continuation of it from this part.

“ We observed, that the disease in the nerve had proceeded no farther, towards the brain, than the union of the two nerves; but it had gone so close to that union, as to appear just as if no nerve had ever been given off at that part: both nerves seemed sound before and at their union. The thalami were likewise sound. The tumor, which was in the left orbit, had an external covering, everywhere, of about one-eighth of an inch thick, and, within that, was a brownish substance, that seemed to have no direction of fibres, and appeared as if glandular; yet it was not so smooth, or solid in texture, but more spongy or loose. Mr Hunter observed, *that he had always found this sort of texture in scirrhus testicles, breasts, &c. when not of the gristly kind, such as often arise in wens, white-swellings, or from the remains of inflammation.*

“ The optic nerve of the right eye seemed quite sound through its whole length; the eye-ball, when cleared of the muscles, cellular membrane, &c. had just the common appearance. Mr Hunter took off the upper part of the sclerotica, choroides, and retina, with as much of the vitreous humour as was contained in this section, and, by that means, exposed the cavity of the eye.

“ We found the coats and retina perfectly sound, and the crystalline humour, in its place, firm and transparent ; but in place of part of the vitreous humour, was a whitish curdly substance, which lay in the posterior and outer part of the cavity, and had pushed the vitreous, that remained, to the anterior and inner part of it. Whether this whitish curdly substance had been formed on the outside of the vitreous humour, and had pushed it to the inside, or whether this substance was produced in the humour itself, which was wasted in proportion as that matter was formed, is not very easily determined ; but the latter seems most probable ; for it appeared as if the vitreous humour was continued into this substance, or, as it were, entangled in it. This substance was as much detached from the retina, as the vitreous is in common.

“ I should not have attempted offering a case of this sort to the public, it having been so unsuccessfully treated, and so little understood, had not the dissection rendered the appearances more intelligible, and pointed out the immediate seat of the disease. If this could have been known, and the eye emptied, before the coats were at all affected, might not the life of the child have been preserved ? for, by the dissection of the right eye, the disease appears to have arose in the vitreous humour only, and to have been confined to this part several months, while the other parts of the eye remained, in all appearance, perfectly sound : and is it not possible that the coats of the eye might again have been filled with some kind of aqueous humour, which might have restored an imperfect vision *?”

* Medical Observations and Inquiries, vol. iii. p. 133-137.

CASE XII.

THIS case is very fully described by Mr E. Ford, in the first volume of the London Medical Communications, entitled, "A case of *Proptosis*."

A girl, three years of age, born of healthy parents, was brought to me with a proptosis of the left eye. "The tumor projected to a considerable distance from the edge of the orbit, was covered with a hard dry crust, and discharged a fetid corrosive matter. The right eye was perfectly free from disease. The patient had no headach, was very lively, and appeared in every other respect to enjoy a good state of health.

"The parents informed me, that about a year before she had been affected with a scabby eruption on her head, which soon yielded to a saturnine application, and that, within a month after the disappearance of the eruption, an inflammation and swelling had taken place in the left eye, for which she had been under the care of different empirics; that the tumor had continued to enlarge, till the sight of that eye was totally lost; and that one day, after slipping down, it burst, and discharged a quantity of sanious matter.

"From the nature of the complaint it seemed obvious, that a total extirpation of the diseased eye was the only resource left; and, from the account given of its progress, there was no reason to form an unfavourable prognostic.

Accordingly the operation was performed in the presence of Dr Duncan of Edinburgh, and several other gentlemen. Upon removing the cellular membrane, in which the eye is enveloped, we discovered a small *scirrhus* tumor at the bottom of the orbit, surrounding the optic nerve. This was entirely removed, together with a large portion of the nerve itself.

“ The operation was performed without any considerable hemorrhage, and the eye-lids, not being diseased, were preserved.

“ Upon macerating the tumor in water, great part of the spongy substance, which had made so large a prominence in the face, dissolved. The optic nerve was harder than common, and of a cineritious colour. The humours of the eye were converted into a black gelatinous substance, but its coats had not undergone much alteration.

“ For some time after the operation, the patient was free from pain, the wound looked well, discharged a thick matter, and the cavity filled up with red granulations. It was observed, however, that she did not acquire strength. She became paler and more emaciated, and, at the end of the third week, was suddenly and totally deprived of the sight of her remaining eye.

“ There was no inflammation on the surface of this eye ; the cornea, and the crystalline humour were free from any defect, but the pupil was very much dilated, and the iris incapable of motion, so as to exhibit the appearance of a *gutta serena*.

“ Various means of relief were attempted, without effect. The patient languished, in a very emaciated state, with frequent vomitings and convulsions, and died on the 20th of October 1781, two months after the operation.

Dissection after Death.

“ The membranes of the brain were in a healthy state. The lateral ventricles contained an ounce and a half of a serous fluid, the greatest part of which was in the left ventricle. There was no morbid appearance in the corpus callosum, plexus choroides, or fornix; but, on removing the roots of the latter, we observed that the interior part of the thalami of the optic nerves was of a greyish colour, and much firmer than usual.

“ The upper part of the brain was now removed, and under the anterior lobes we found a swelling, larger than a hen’s egg, formed by an enlargement of the thalami on the left side; and, upon raising this substance from the cranium, we discovered the cause which had so suddenly deprived the patient of the sight of her right eye.

“ This swelling, which seemed to have begun on the left side, having gradually increased in bulk, had at length pressed upon the right optic nerve. The compression had been so violent, that the nerve was removed from its natural situation, as it were, and bent against the clinoid process of the *os sphenoides* so forcibly, that the portion of the nerve between this process, and the foramen opticum, was diminished one-half of its usual size, while the portion nearer the brain retained its usual appearance. The disease extended backwards almost to the medulla oblongata, comprehending the pituitary gland. The cerebellum, and all the other parts of the encephalon, were in a sound state, as were likewise the coats and humours of the right eye.

“ From the bulk of this tumor, and from the morbid appearance of the left optic nerve, at the time of the operation, may it not be concluded, that the disease had existed in the left side of the brain, previous to any affection of the right eye? If this be allowed, does not this circum-

stance tend to weaken an opinion which Cheselden and others have supported, that the nerve of each eye arises wholly from the opposite side of the brain * ?”

CASE XIII.

SCARPA, in the preface to his work on the Diseases of the Eyes says, “ that I have not entered into a description of the *cancer* of the eye, since I have never met with more than two instances of this disease, these only serving to establish a fact already sufficiently known, viz. the inefficacy of extirpating the eye-ball whenever the cancerous diathesis has, in the smallest degree, extended beyond the ball itself or its appendages. The first of these cases occurred in a boy thirteen years of age, in other respects strong and healthy, in whom, besides the eye-ball being *scirrhus*, and projecting out of the orbit, there was a tubercle of the same nature, situated between the internal angle of the eye-brow and the root of the nose. I extirpated the eye, and removed every part within the orbit which was indurated or diseased, in the most careful manner, together with the tubercle situated between the supercilium and root of the nose : every thing went on well, and the wound was completely healed. Two months after the child returned home, two new indurated tubercles appeared in the cellular membrane of the supercilium of that side, towards the temples, and a fungus afterwards grew from the bottom of the orbit.

* Medical Communications, vol. i. p. 95-100.

This unfortunate child was then seized with a constant pain in the head, and afterwards with slow fever and general convulsions, which shortly terminated fatally."

The other patient on whom Scarpa operated was a man 50 years of age; and the description he gives of the case makes it probable that it was a true cancerous affection. But the history and symptoms of the disease in the first case, the age of the patient, and the consequences of the operation, prove, I think, beyond a doubt, that it was a disease in every respect analogous to that which I have so fully detailed. The only circumstance which is particularly worthy of remark in the progress of it, was the situation of the swelled gland on the eye-brow; for in most of the other cases the glands affected were those lying over the parotid or under the jaw.

CASE XIV.

THE case, of which the following is an abstract, is recorded by Mr John Rodman of Paisley, in the 11th volume of the Medical and Physical Journal.

The girl was twelve years of age. While amusing herself she struck her forehead against a wall, by which she was stunned. On the 5th day after this accident, she felt a pain in the forehead, over the left eye. This pain increased, inflammation succeeded, and the eye-ball enlarged. Common cataplasms were applied to the eye, the vessels of the adnata were divided, the cornea was opened with a lancet, and a small quantity of pus was discharged, along with the

aqueous humour. Twelve months from the first appearance of the disease, it had made great progress, the pulse was 130, and remarkably feeble; the face and lips had scarcely a tinge of blood, and the body was much emaciated. Though she took considerable quantities of laudanum, she had not been known to enjoy sleep for several months. The tumor hung down even below the chin, and covered great part of the mouth, being of a conical form, $7\frac{1}{2}$ inches long, and its base 11 inches in circumference. The palpebræ were so much distended as wholly to cover the tumor, and there was a foul ulcer between the ciliæ, from which frequent alarming hæmorrhagies took place. In this stage the tumor was extirpated, and for some weeks her health improved, and she was relieved from pain. Towards the end of the seventh week from the operation, a small livid fungous tumor appeared at the internal angle of the orbit, where a deficiency of bone was discovered during the operation. "Ten days after the appearance of this tumor, the surface of the sore changed for the worse; her pulse quickened, and her appetite diminished. The sight of the right eye gradually failed, till she became blind. Diarrhœa ensued, and she died in the eleventh week after the operation. Being sensible of approaching dissolution, the day before death she remarked, with a considerable degree of gratitude, that she suffered more pain in one day, before the operation, than she had ever done since."

Dissection twenty-four hours after Death.

Having exposed the contents of the cranium, no mark of disease could be discovered; but, upon pressing behind the diseased orbit, a large hard body was felt. After cutting up the dura mater, and removing the brain, which

seemed free from disease, this body was found lying between the orbit and dura mater, and adhered to it by means of slender vascular filaments. It was of a white colour, very irregular, extending as far back as the sella turcica, and considerably to the right of the *crista galli*. Its surface was hard, like a body approaching to ossification, but, towards the base of the cranium, it had a gelatinous appearance, whiter and more consistent than pus. The livid tumor, observed on the seventh week after the operation, which I attempted to destroy by caustic, was a branch from the internal tumor. Another branch had forced itself into the left nostril, some time before death, which in every respect resembled a very firm *polypus*.

On the left side there did not remain the smallest vestige of the optic, nor any nerve, to the seventh. The right optic nerve was preternaturally enlarged, and surrounded by the internal tumor, from the sella turcica forward. After all the diseased substance was extracted, a most extraordinary deficiency of bone was observed. The left orbital process of the frontal, malar, and maxillary bones were consumed, except at the external canthus, where a small portion of the two first bones remained carious and thickened. The os unguis, with the whole left side of the sphenoid and ethmoid bones were wanting; indeed, every portion of bone which had been in contact with the tumor was either softened or destroyed. A probe passed freely through the body of the sphenoid bone into the nostrils and palate. Another tumor, which had appeared for some weeks, extended before death from above the superciliary ridge to the apex of the nose; it was an inch and a half broad, and near an inch deep. The bones with which it was connected were also softened, and, though it resembled the firmest

part of the internal tumor in colour and consistence, they were totally unconnected.

December 19th 1804.

CASE XV.

Mr WARE gives a very accurate account of an example of Fungus Hæmatodes in the eye*, where, after relating a curious dissection of a disease in a man's eye, in which the retina was formed into a cone, from the collection of a fluid between it and the choroid coat, he adds ;

“ I do not remember in any author to have met with the description of a case in which the immediate cause of blindness was similar to that which has just been related ; and I recollect only one instance in which the appearance on dissection bore a resemblance to it. This was in the case of a young lady, about six years old, who gradually lost the sight of the left eye, in consequence of the formation of a white substance in the posterior part of the vitreous humour. The whiteness was perceptible through the pupil in some particular positions of the head, but not in all. It continued without producing any other change in the appearance of the eye for many months. At length the eye began to enlarge, soon after which its natural shape was destroyed, and the tumor assumed a *carcinomatous* appearance. When the tumor had advanced thus far, it was thought advisable to extirpate it,

* Observations relative to the Eye, &c.

and the operation was performed with great accuracy and care. But, notwithstanding this, in the course of a few weeks, the tumor discovered a tendency to regenerate, and in a short time it grew again to its former size, being now accompanied with an enlargement of the left parotid, and of many other glands on that side of the face and neck. An appearance was now also discovered in the pupil of the *right* eye, similar to that which had been perceived at the beginning of the disorder in the pupil of the *left* eye. But here it advanced no further, than to be perceptible as a white substance in the posterior part of the vitreous humour, and this only in particular positions of the head. The young lady *died*, having previously suffered most violent pain in the whole head, and particularly on the left side.

Dissection after Death.

“ On opening the head, a thick sanious fluid was found collected between the cranium and *dura mater*, not only on the inside of the left orbital process of the os frontis (which process was carious, and its surface much jagged), but also on the inside of the os occipitis, a little inclined to the right side, where it occupied a space nearly as large as a crown-piece. The bone here was also discovered to be very rough and jagged, and it appeared to be indented by the pressure of the confined matter. The quantity of water collected in the ventricles of the brain was considerably greater than is usually found, and several small hydatids were observed on the *plexus choroides*. The cavity of the left orbit was filled with the excrescence above described. The right eye did not appear to be enlarged, but, on cutting through its tunics, almost the whole space usually occupied by the vitreous humour was found to be filled with a *steatomatous* substance, which, in general, was

of a white colour, but in some few places was red and bloody. When this substance was removed, a white smooth tumor was discovered behind it, perfectly distinct from the steatomatous substance above mentioned, and appearing to be a morbid alteration in the retina. The choroid coat had very little of the *nigrum pigmentum* spread over its surface. The crystalline humour, as well as its capsule, was perfectly transparent; and the optic nerve, and every other part connected with the eye, appeared to be in a sound state.

“ In this case, notwithstanding the morbid change above described in the retina, and in the vitreous humour, it is remarkable, that the eye preserved a considerable degree of sight, even till the time of the young lady’s death.”

M. Gendron in his *Traité sur les Maladies des Yeux*, Vol. II. p. 405, slightly hints at a disease existing in the eye different from cancer, and alludes to a particular case of a fungous tumor in the eye of a child. “ The cancerous poison,” says he, “ is not the only one which can occasion that elevation of the membranes of the eyes; a *scrofulous* humour may also cause it. I have seen a child, in whom the globe of the eye projected out of the orbit more than two fingers’ breadth, and this young child had a well marked scrofulous habit.”

M. Luis * quotes a case mentioned by Paaw, of a child three years of age, “ in whom the left eye escaped out of its cavity, and acquired the bulk of three fists. The disease had not been observed till a few months before the child’s death. On opening the cranium, a *fungous* tumor was discovered, the base of which adhered to the *dura mater* upon the orbit, without the brain being changed.”

In the same memoir M. Luis quotes the following case :

“ On the 8th of July 1737, my father,” says M. Hoin, “ called a consultation of all the principal surgeons of Dijon, at the house established for the sick poor, in order to examine the case of Christian Sordeau, aged *three* years. The globe of the left eye was pushed forwards, and had acquired the bulk of a goose-egg. The pain was very violent, and it had only been fifteen days since the globe of the eye had begun to enlarge, although the child had totally lost the sight of both eyes, from an obscurity of the cornea, which followed an obstinate ophthalmia. There was reason to believe, that this disease was produced by the action of a *scrofulous* virus, because the child had a num-

* Vide Memoires sur Plusieurs Maladies du Globe de l’Œil, par M. Luis, dans les Memoires de l’Academie de Chirurgie, Tom. V.

ber of swelled glands on the neck, particularly on the left side, where there was one which extended from the larynx to behind the ear. Notwithstanding the fever which tormented the child, it was agreed upon to extirpate the prodigious eye. My father performed the operation immediately, and the child was cured nineteen days after the operation."

In the case alluded to by M. Gendron, and in those of Messrs Paaw and Hoin, there is much reason to suspect, that they were examples of the disease of which we have been speaking. The ages of the patients, and the general appearance of the tumors, make this opinion probable; and though M. Hoin's patient is said to have been cured in nineteen days, yet, from the unsuccessful results of all the other cases, there is every reason to fear that the disease ultimately returned, and proved fatal.

Heister has also given a drawing of a case of *fungus of the eye* in his surgery, and refers to his "Observations," &c. for a history of the case; but his account of it is extremely short and inconclusive.

I have also become acquainted with a considerable number of other cases, which have come under the care of several of my medical friends. But their history and termination are so analogous to those already mentioned, that I think it unnecessary to give them in detail.

One of these was under the care of Dr Thomson some years ago. He was struck with the greenish colour at the bottom of the eye; and when the eye enlarged, and apparently contained an increased quantity of humours, he made an opening in the cornea to discharge them; but besides aqueous humour, a quantity of a thick whitish matter, resembling custard, came out, and soon afterwards a fungous mass grew from the eye-ball, which destroyed the child.

Two cases have also come under the care of Mr George Bell. In one of these a very large tumor protruded from the orbit, and it was thought advisable to extirpate it. I had an opportunity of seeing the operation per-

formed by Mr Bell, and all the diseased parts were completely removed. “ Every thing went on well for several weeks, and there seemed a tolerable prospect of a cure being effected, as the edges of the wound healed, and the discharge from the bottom of the orbit was good, and reduced to a very trifling quantity. These favourable appearances, however, were not of long duration, as a fungous growth soon began to appear in the orbit, and increased with prodigious rapidity, baffling the power of every escharotic I durst venture to apply to it. A second operation was performed nearly with the same success ; for after the parts had assumed a healing appearance, and matters had gone on favourably for some weeks, they began to degenerate, and the disease soon terminated fatally.” In the other case no operation was performed ; and though now near two years have elapsed since Mr Bell first saw the child, the disease has not yet terminated fatally.

It may be remarked, that all the cases which have been yet mentioned, have occurred in children; the disease, however, as I before took notice, though most frequent in them, is not confined alone to the early periods of life. I have been able to learn of only a few cases of the disease in the adult, and two of these have come under my own observation *.

In those advanced in life, the morbid growth appears to be liable to more variation in its structure than in children, though it may be observed, in the cases which follow, that the same general character belongs to all. The chief part of the diseased mass presents the *medullary* appearance noticed in children; there is the same tendency in the disease to contaminate the adjacent absorbent lymphatic glands; and the termination of the disease is equally fatal.

* See Cases XVI. and XVII.

CASE XVI.

THIS patient was under the care of Mr Allan Burns, surgeon in Glasgow, with whom I had an opportunity of examining the eye, and of dissecting the parts after they were removed. As the case is extremely interesting, affording an example of Fungus Hæmatodes, not only in the globe of the eye, but also in the *liver*, Mr Burns has been so obliging as to allow me to publish the following account of it.

“ The female whose eye you assisted me in extirpating, was about 41 years of age. She had always been of a delicate habit of body, and of a sallow complexion, but had never observed any affection of her eyes till two years and a half ago. About that time she began to see less distinctly than usual with her left eye; and on looking at the organ, a milkiness was seen behind the pupil. This opacity of the lens gradually increased for four months, when she became completely blind of that eye. After having been blind for about two months, the eye became very much inflamed, without any obvious cause. By bleeding with leeches, &c the inflammation abated, but the redness and pain never entirely left the eye. From what I have been able to learn, the opacity of the lens could not be so decidedly ascertained after this attack, owing to the turbidity of the anterior chamber. The further progress of this case was not traced till within the last six months. At the beginning of that period, a tumor began to protrude from the lower side of the

sclerotic coat, just behind the attachment of the lucid cornea. When I examined the eye, about four months ago, it appeared that the cornea was more prominent than usual, and I could neither distinguish with accuracy the iris nor crystalline lens. The appearances impressed me with the idea, that a fungus was lodged behind the cornea, ready to protrude as soon as the cornea gave way ; and in regard to the tumor attached to the lower side of the sclerotic coat, it at that time seemed to contain a dark-coloured transparent fluid, which I thought was a part of the aqueous humour, which had escaped from the eye-ball, by a rupture of the proper coats of that organ. This cyst was about the size of a musket ball, and was formed by a distention of that part of the tunica conjunctiva which covers the sclerotic coat ; and over the surface of the sac a number of red vessels were seen running in every direction. The pain was intense and lancinating ; her sleep was interrupted ; and, besides being affected with hysteria and pain in the back, she was in some degree hectic. When I saw this patient four months afterwards, matters were in a much worse state than formerly ; her health was now completely broken ; she had confirmed hectic fever, and was often attacked with paroxysms of hysteria. She was much reduced, and exceedingly weak, and had not been out of bed for two months. On examining the eye, it was found that the cyst, which formerly was not larger than a musket ball, had now become as large as a pigeon's egg, forming a solid fungous mass, which could be with difficulty raised, so as to uncover the under eye-lid. The cornea was now flat, and hid beneath the upper eye-lid ; and, from the body of the large fungus, two small fungi protruded. Towards the temporal angle of the under eye-lid, there was a hard tumor, situated underneath the integuments, which adhered firmly to the cheek-bone."

Mr Burns extirpated the globe of the eye with much care and accuracy, but the tumor which adhered to the cheek-bone could not be completely removed, the bone itself being found diseased and carious.

Dissection of the Eye-ball.

When dividing the eye-ball and optic nerve, a great quantity of a thick viscid matter, having a very dark brown colour, covered the knife. The eye-ball and tumor seemed at first sight entirely composed of a similar dark-coloured matter. This singular looking substance was of the consistence of thick oil-paint, though not so clammy or oleaginous. It soiled the fingers of a dark brown or amber colour. It was readily dissolved in water, and both Mr Burns and I were struck with its resemblance to the *pigmentum nigrum*; but we were much at a loss how to account for the formation of such a large quantity of that substance. I kept the eye-ball in water for twenty-four hours, so that a great quantity of the black matter was dissolved, leaving the solid parts of the mass more distinct. The cornea (*a a*)* appeared sound, and the crystalline lens behind it was of an amber colour.

The sclerotic coat, at that part which corresponded to the malar portion of the orbit, was ruptured by the edges of the tumor, and the torn edges were separated about a quarter of an inch from one another (*b b*). At the same place the sclerotic coat was split into two layers, a small quantity of the dark-coloured substance being interposed between them.

I could not distinctly trace any remains of the iris, but the choroid coat (*c c*) appeared much more vascular than natural; and at one part it was five or six times its natural thickness,

* See Plate III. fig. 1.

At the place where the sclerotic coat was ruptured, the choroid coat insensibly terminated in a white pulpy substance, composing part of the diseased mass (*d*).

The contents of the eye-ball were chiefly composed of a medullary-looking pulpy substance, variously tinged in different places by the dark brown colouring matter. The tumor, projecting beyond the sclerotic coat, appeared to be composed of a similar structure, and from the maceration numerous white striæ, and in some places spots, appeared throughout the substance of the diseased mass (*eee*). The tumor exterior to the eye-ball was covered with a thick mucous membrane, except at the two small prominent parts where it had been ulcerated; and this covering had probably been derived from the tumor pushing before it, during its growth, the conjunctiva which lies over the sclerotic coat.

The *optic* nerve was of its natural size; but, by examining its section, it was found that the medullary part of it had a black appearance, exactly resembling the tumor in the eye-ball, whilst the *neurilema* (*ff*) was of its natural colour, and apparently healthy. I could not detect any remains of the retina.

The following account of the result of this case was communicated to me by Mr Burns.

“ This woman, although much reduced by a hectic, and emaciated to a great degree at the time of the operation, soon appeared to recover. She gained flesh and strength; her appetite was restored; the pains in her back and loins left her; she slept well, and was able to walk about. The orbit even discharged good pus, in moderate quantity, and was at last filled up with a soft substance, which, although dark in colour, skinned over. At this stage, when she her-

self and her friends considered her recovery certain, the weather became cold and damp; the pain soon recurred about her back; she lost her appetite, and was unable to walk, from exquisite pains in the loins. After she was confined to bed, she became rapidly worse. The pains increased in severity, insomuch that she could obtain no sleep, except from the use of opium. The lower eye-lid was protruded by an elastic fungus, which also began to project from between the palpebræ. The disease in the orbit gave her no uneasiness, her whole complaint being seated in the back and loins. The pain there was so excruciating, so gnawing, and occasionally so much increased in intensity, that she screamed from agony. She could neither turn in bed, nor permit herself to be turned; for, on every motion, she felt as if many sharp instruments were pushed into her back. In this deplorable condition, she lingered for two or three months; the tumor below the orbit all the while increasing in size, and the pain in the loins in no degree remitted. When I saw her, three weeks before her death, she was a hideous picture of disease; she was emaciated to the last degree, and the tumor below the orbit was as large as a pullet's egg. Its surface was unequal; the most prominent parts of it were covered with livid integuments; and the swelling conveyed to the fingers the impression, as if it contained a fluid. From between the palpebræ, a very small fungus protruded, which was covered with a crust of bloody-looking matter. She had, however, little or no pain either in the orbit or in the head; and the vision of the other eye remained unimpaired. From this time to her death, she sunk gradually; and the tumor enlarging, became more discoloured on its surface, and more irregular; but the fungus between the eye-lids did not alter. About 24 hours previous to her death, she became suddenly comatose."

Dissection after Death.

“The *liver* contained some tumors of a similar consistence with the contents of the eye-ball. There was also a cyst in the substance of the liver, filled with a great quantity of grumous-looking purulent matter.

Above the kidneys, there were similar tumors, of pretty considerable size; and the uterus was of a cartilaginous density. The urinary bladder was enormously distended, with a turbid bloody-looking fluid; but otherwise, in so far as this viscus was examined, its structure appeared healthy.

By making a vertical section of the orbit, and the fungus it contained, we found the tumor entirely arising from the *antrum maxillare*, which was burst open both above and in front. The fungus also projected beyond the lower spongy bone and investing membrane of the nose into the nostril. The tumor proceeding from the antrum was, on its outer surface, studded over with small knobs, of a dark livid colour. Internally, this tumor was made up of a soft substance, of an ink-colour, intersected by membranous slips, intermixed with a greyish-looking substance, and ragged fragments of bone. The anterior wall of the antrum was destroyed at the upper part, and the floor of the orbit was elevated, so as merely to have the periosteum and a thin layer of fat between it and the orbital plate of the frontal bone. The fungus was exterior to the orbit, although, from the destruction of the periosteum attached to the lower and exterior margin of the orbit, it was not allowed to protrude from between the eye-lids. This portion of the periosteum was in part destroyed by disease, and in part, in consequence of the removal of a carious portion of the bone, when the operation of extirpating the eye was performed.

With regard to the *optic* nerve, it was expected, that its extremity would have been joined and connected with the

fungus. Between them, however, the periosteum of the floor of the orbit was interposed. The nerve itself was of its natural size, but of a black colour where it passed through the optic foramen. From this point, to near where it had been divided at the extirpation of the eye-ball, it was nearly in a similar state ; its coats had only a slight connection with the diseased substance of the nerve. Exterior to them, there was considerable matting and induration of the muscles. The nerve, at its termination, formed a sharp point, and its sheath was attached to the thickened periosteum of the floor of the orbit, which was pushed up in contact with it, by the fungus from the antrum. The optic nerve within the cranium was as thick as the little-finger, and as dark in colour as that portion of it within the orbit. The junction of the nerves was so much enlarged, that it formed a tumor into the third ventricle.

As, from the dark colour of the diseased parts, this was a favourable case for ascertaining whether the optic nerves decussate each other, or merely come in contact, I examined carefully the state of these parts. I found the dark colour extending beyond the point where the nerves join ; but this change of colour was confined to the *left* side, or that of the affected eye. On the *right* side, the nerve was of its natural size and colour, and was merely attached to the black diseased parts by cellular shreds. This dissection, therefore, clearly proved, that the nerves did not, in this individual, cross each other. I would be, however, inclined to believe, from what I saw, that the optic nerves were joined to each other, by interposed nervous substance common to both. The left optic thalamus was of natural structure, but about a third larger than the opposite one. The third, fourth, ophthalmic branch of the fifth, and sixth pairs, were all healthy.”

CASE XVII.

THIS patient was under the care of Mr Renton, surgeon at Pennycuick. I was present at the operation, and Mr R. was so obliging as to give me the parts afterwards for dissection. In several points of view, this case is extremely interesting ; for though, in the history of the disease, and in many of its general characters, it resembles Fungus Hæmatodes, yet, in some particulars, it differs considerably from all the other cases, and in nothing more than its fortunate termination.

A woman, at fifty-eight years of age, had a tumor of the right eye, of such a bulk, as not only to fill up completely the cavity of the orbit, but to project an inch and a half beyond the superciliary ridge. It pressed forwards the conjunctiva of the eye-lids, and completely effaced any remains of an eye-ball. The tumor was of an irregular knobbed form, and appeared as if composed of two principal parts. One of these filled up the orbit, and was covered by the eye-lids, and their extended conjunctiva. The other part projected beyond the former. Its surface was more irregular ; it had a dark purple colour ; a thin skin could be traced covering it, except on two or three parts, where ulceration had taken place ; and the ulcerated parts discharged a thin sanies, and sometimes blood. The whole mass had a soft elastic feel, though no distinct fluctuation could be perceived.

This woman had been seized with a violent inflammation in the eye, *ten* years before, accompanied by a great degree of fever, and pain in her head. These symptoms continued, with unremitting violence, during three months, at which time the eye burst, and the pain in her head abated. After that period, the eye was occasionally attacked with inflammation, but it seldom lasted long. At last, the eye-ball appeared flattened, and the cornea opake. No change had taken place till fourteen months before I saw her. At that time, Mr Renton observed a tumor arise on the cornea of the collapsed eye-ball, about the bulk of a garden-pea, which tumor had gradually increased in bulk. During its increase, she was frequently seized with severe febrile paroxysms; and, after each attack, an evident enlargement took place. Some portions of the swelling mortified, and sloughed off; and this process was always followed by a profuse hæmorrhagy.

Mr Renton, with Dr Thomson's assistance, extirpated the whole contents of the orbit. After freely dividing the eye-lids at their junction at the temporal angle of the eye, and dissecting back the integuments to the bony edge of the orbit, a curved knife was thrust down between the orbit and the tumor, and carried round it, close to the bone. When an attempt was made to turn out the diseased mass with the fingers, it was bruised, and broke through near the bottom of the orbit, a very considerable quantity of a dark-brown coloured *pulpy* matter being squeezed out in removing it.

A few pieces of the morbid mass which remained were afterwards taken away, and the whole contents of the orbit were completely removed.

Dissection of the Eye-ball.

A horizontal section of the tumor being made *, so

* See Plate III. fig. 3.

as to divide it into two equal parts, it appeared to be composed of a substance a good deal firmer than brain, but, like brain, it became softer when exposed to the air, and was readily mixed with water. Its colour was of an iron-gray, or cineritious gray colour, intermixed with septæ of a paler hue. The septæ (*a a a a*) were not very numerous, and they converged to a point which corresponded to the place where the exterior tumor, and tumor contained within the orbit, were united. The septæ, though not of a very firm consistence, were rather more so than the other parts of the mass.

Some parts of the tumor had much the appearance of a clot of blood.

Nothing like optic nerve, or any of the coats of the eye-ball, could be detected; nor were there any remains of the muscles of the eye-ball or lacrymal gland.

The woman recovered rapidly, after the operation; the orbit was filled up with healthy granulations, and her general health, in a very few weeks, was completely established.

Ten months have now elapsed since the operation was performed, and Mr Renton informs me she remains in perfect health.

From the external appearance of the tumor, in this case, the *medullary* looking substance of which it was composed, the disposition of the part to throw out a *fungus*, and the fungus to mortify and slough away, there are, I think,

sufficient grounds to consider it as an example of Fungus Hæmatodes. On the other hand, the appearances on dissection were certainly different from those of every other case of the disease which has come under my observation. The organization of every part composing the globe of the eye was destroyed, whereas, in the other cases, all the parts except the retina could be easily distinguished. The success attending the operation is also an important fact ; but time alone can prove whether it shall be considered as a radical cure, or as affording merely a temporary relief. These observations are not, however, sufficient to warrant us in denying the analogy of this case to fungus hæmatodes. The present state of our knowledge is yet too circumscribed, to be able to speak with decision and certainty in all cases ; but from what we know, I think it cannot be denied, that it more resembles *fungus hæmatodes* than any other disease with which we are acquainted.

There is a very accurate account of a case, extremely similar to that last mentioned, re-

corded in the third volume of the Edinburgh Medical and Surgical Journal, by Mr Mead, surgeon at Hadleigh. As this work is in the hands of most medical men, I think it unnecessary to make any long abstract of the case. I may only remark, that the patient, who was a man 58 years of age, received a violent blow on his left eye, which brought on great inflammation, loss of sight, and, in a year afterwards, the eye burst. During two years after this took place, he remained without pain; but he was afterwards attacked with excruciating torture, which prevented him from having an hour's sleep during months. For several years, he had many slight attacks of pain; and in the tenth year from the time the eye was first affected, it became inflamed, painful, and swelled, and, at the time of the operation, it had acquired the bulk of a middle-sized lemon. The tumor was punctured, being supposed to contain a fluid; but nothing but blood escaped. Mr Mead then extirpated the tumor. "All the fat of the orbit was found to be absorbed; the muscles,

coats, and humours of the eye were one confused mass of disease, connected extensively by morbid adhesions to the periosteum : in short, the whole orbit was literally crammed with a confused mass of disease."

He lived a year from the time of the operation; and, excepting one week, he applied himself to various branches of agricultural labour, till within five days of his death.

4.—*Concluding Observations.*

In the relation of the cases, some may accuse me of too great minuteness, and of having described at full length more of them than was necessary. But on a subject which is, in many respects, new, and which lays open an extensive field, yet unexplored, I hope that, by an accurate detail of all the cases with which I have been able to become acquainted, though they do not now appear of importance, yet they may afterwards prove useful, by establishing some new pathological or practical doctrine.

After the fungus hæmatodes has been described in the different organs of the body, we shall be prepared to enter fully into a comparative view of the alterations in structure which take place in this disease and in *cancer*, and thus to point out the precise characters of both. I may, however, observe here, that I much suspect whether *cancer* ever affects the globe of the eye in its *primary* form ; at least, I have never met with an example of this kind. I have had repeated opportunities of observing a cancerous sore beginning on the integuments of the eye-lid or tarsi, and spreading along the conjunctiva, till it reached the globe of the eye, the structure of which it ultimately destroyed, and contaminated the neighbouring absorbent glands ; but I have never been able to obtain an accurate account of a single case, where any of the coats or contents of the eye-ball were the primary seat of cancer *.

* Fig. 2. plate III. is a representation of a section of a scirrhous tumor situated between the under eye-lid and globe of the

The cases which I have already mentioned, have been generally, if not always, considered as examples of cancer in the eye; and I have had an opportunity of seeing other diseases of this organ, at a time when my attention was not particularly directed to the investigation of the present subject, which were, perhaps, neither of the nature of *fungus hæmatodes* nor *cancer*. I am led to form this opinion from the final result of the cases; and from thinking it highly probable, from analogy, that when the eye bursts, tumors may arise from its internal parts, resembling more some kinds of *polypi*, than either *fungus hæmatodes* or *cancer*. There are several cases of tumors of this kind described and delineated by Beer; and, in the works of Fabricius Hildanus, there is a very accurate account of a case, which was successfully extirpated, in which a prodigious tumor grew from the eye-ball. A very remarkable case, very analogous to that given by Fab.

eye. It is given in order to contrast the structure of scirrhus and *fungus hæmatodes*. See explanation of the plate.

Hildanus, I had an opportunity of seeing, ten years ago, under the care of Dr Wardrop.

A gentleman, who resided in England, consulted many respectable surgeons about a very large excrescence which grew from the eye-ball ; but as they supposed it to be of a *cancerous* nature, and as the disease had extended far, they declined making an attempt to remove the diseased parts. When he came to Edinburgh, a very large excrescence was found projecting from the orbit, and extending beyond its bony margin. As Dr Wardrop was assured, from a careful examination of the parts, that the whole diseased mass was within the reach of the knife, and doubtful of its cancerous nature, he undertook to extirpate it. The operation was accordingly performed, and, the eye-lids being excoriated, they were also taken away along with the tumor. The parts healed in the most rapid manner, and the gentleman returned home to England in a month after the operation. A short time ago, Dr W. heard that the disease had not returned. No account was

taken of this case ; but Dr Wardrop particularly remembers, that the optic nerve was found quite sound.

5.—*Of the Treatment of the Fungus Hæmatodes of the Eye-ball.*

FUNGUS Hæmatodes, like cancer, has, as far as I know, resisted the power of all external and internal medicines.

The extirpation of Fungus Hæmatodes in the eye-ball has been also unsuccessful ; for, in all those cases in which I have removed the eye-ball, and in those, the history of which I have been able to learn, where the operation has been resorted to, it has been attended with the same unfortunate failure, excepting in one doubtful case* ; and even in this, as only ten months have elapsed since it was performed, we cannot speak of its effects with certainty. In whatever texture of the organ the disease originates, it appears ex-

* Vide Case XVII.

tremely probable, that we are ignorant of its existence before the *retina* has become affected ; and that, in many cases where the disease does not appear to have proceeded far, judging from the external symptoms, not only the retina, but also the optic nerve, is altered in structure. From the effect of the operation, therefore, in those cases with which we are acquainted, and from what we know of the change which takes place in the optic nerve and retina, we should be led to desist entirely from attempting the extirpation of the eye-ball. But as we know of no instance of the operation being performed at a very early period of the disease, or in any case where the optic nerve was found in a healthy state, there is still room to hope for success under such circumstances. It is an experiment, at all events, which well merits trial ; and were I in any case to be assured of the existence of the disease in the early stage, I would have no hesitation in urging the performance of the operation. Past ex-

perience proves the impropriety of attempting any operation, when the disease has advanced so far that the posterior chamber is filled with the diseased growth. An operation at this period has, in many instances*, alleviated the patient's sufferings, but I have no hesitation in saying, that it has, also, in many cases, hastened the patient's death. The want of success in the treatment of what has been generally called *cancer* of the eye, by extirpating the disease, has been long and very generally remarked by surgeons; and I have little doubt, but that opinion has arisen from the fungus hæmatodes being classed among cancerous diseases, and operated on as such. The benefit which is to be expected by the use of internal medicines, or by external applications, can alone be determined by experience. Our present knowledge does not even give us room to form a conjecture from any analogous reasoning, or encourage us to expect, that the exhibition of any medicine will impede its pro-

* See Cases XV, XVI, XVII, &c.

gress, or eradicate it from the affected organ. It is, at least, one step, however, in the advancement of medicine, that we have pointed out the line of distinction between Fungus Hæmatodes and Cancer, so that all attempts in the cure of the one may not be confounded with that of the other; for there is much reason to suspect, that a want of accuracy in the discrimination of diseases, leads often to very erroneous conclusions in adopting a mode of cure. Thus, diseases *resembling* cancer, have been considered as such, and successfully treated by some, whilst the same remedy, employed by others, in true cancerous cases, has proved altogether inefficacious.

6.—*Observations on the Mode of Extirpating the Eye-Ball.*

THOUGH the eye may be removed by a very simple piece of dissection, yet there are several circumstances which merit the attention of the surgeon, both with the view of

facilitating the operation, and of insuring its success.

When the globe of the eye is not so much swollen as to protrude beyond the eye-lids, and when the cornea remains sound, it is difficult to get hold of it with sufficient firmness to dissect it out speedily ; it is, therefore, necessary to pass a ligature through the cornea or sclerotic coat, so that it can be held firm, and easily pulled out, as quickly as the parts connecting it to the orbit are divided.

The operation is most easily performed with a common scalpel, and the surgeon should begin with dividing the conjunctiva all round the eye-ball. The eye-lids are then easily dissected back, and the scalpel may be afterwards thrust down to the bottom of the orbit, close and parallel to the bone, and carried, as if sawing the parts, round the whole orbit. The eye-ball now becomes very loose ; and by pulling it outwards, the optic nerve, or any other parts left undivided, may be readily cut through. The branch of the ophthal-

mic artery, which goes to the eye-ball, and supplies the muscles, is necessarily divided in this operation; but the principal trunk or *nasal* branch should be saved. It lies close upon the bone after it enters the foramen lacerum; and it runs along the nasal side of the orbit, till its exit near the nasal suture, where it inosculates with the artery from the opposite side, and is distributed on the parts about the root of the nose.

In all cases where it is necessary to remove the eye-ball, it is also advisable to take out the lacrymal gland, as the lacrymal apparatus becomes useless after the eye-ball is destroyed. This gland, and any portions of the muscles which may remain, may be easily dissected out after the eye-ball has been removed.

The ophthalmic artery generally bleeds profusely when first divided; but I have never met with any case where it was necessary to tie the artery with a ligature. A moderate and well applied pressure most effectually prevents all risk of hæmorrhagy. The pressure should be made, by placing a com-

press of caddis, not broader than the nail of the little finger, directly on the orifice of the bleeding vessel, any blood being previously cleared out of the orbit: a larger compress may be put above the first, and so on, using compresses larger and larger, in succession, until they reach the plane of the orbit, and moderately fill up the cavity. The eye-lids may then be spread over the compresses, and afterwards a pledget of ointment and compress of linen laid above them, and the whole moderately pressed upon by a double circular roller, put round the head.

But in most cases, where this operation is necessary, the eye-ball has altogether lost its form, and becomes much larger, having a fungous tumor growing out of it, and projecting beyond the eye-lids. In such a case, it is extremely difficult to dissect out the eye-ball, without injuring and cutting the edges of the eye-lids. To obviate this difficulty, Mr Dessault adopted a very ingenious, though simple, improvement in the operation *. It

* Vide *Oeuvres Chirurgicales* du Dessault, Tom. II.

consists in making an incision through the integuments, at the temporal angle of the eye, not less than half an inch long, so as to disunite the *tarsi*, and thus liberate the two eye-lids: this he made the first step of the operation. In adopting this mode of operating, I have experienced the greatest advantages; it accelerates the operation, and renders every part of it more simple and more easily accomplished.

The future dissection may be made with a common scalpel, unless the tumor be so large as completely to fill the orbit. When this happens, there is an advantage in using a knife a little curved; for, with such an instrument, the point can be easily turned, so as to divide the part of the tumor at the bottom of the orbit, a step in the operation which is not easily managed with a straight instrument.

In some cases, the tumor exterior to the eye-lids is very large. In a case of this kind, on which Dr Wardrop operated, the operation was much accelerated, by first dissect-

ing off the external tumor, which was done with a single stroke of the knife, and afterwards removing the contents of the orbit.

In some cases, the eye-lids are diseased; this occurs only in cases of a true cancerous nature, the cancerous ichor excoriating and ulcerating the skin. In all those cases, the whole of the diseased skin should be removed along with the cancerous tumor in the orbit, and no attempt should be made to save skin, or any other part which has been exposed to the smallest risk of contamination.

CHAP. III.

OF THE FUNGUS HÆMATODES IN THE EXTREMITIES.

1.—*External Appearances of the Disease.*

EVERY part of the upper and lower extremities seems to be liable to be affected with Fungus Hæmatodes. It has been met with contiguous to the ankle and knee-joints, on the shin-bones, on the calf of the leg, on different parts of the thigh, in the groin, and on the hip-joint. It has been also observed about the wrist, in the fore-arm, in the arm, and over the elbow and shoulder-joints*.

* Hey's Practical Observations, &c.

Fungus Hæmatodes has been found to take place in these parts of the body during all the different periods of life, though it appears to occur, during the early periods, less frequently in them than in the eye-ball. It is generally first perceived in the extremities in the form of a small tumor, which is moveable underneath the common integuments. The tumor has a smooth and equal surface, and feels firm, though it has not the degree of hardness of a *scirrhus* tumor of the same size. In some cases, the tumor at its commencement is much deeper seated, and its degree of hardness and equality of surface cannot be so distinctly felt.

Tumors of this kind have been known to succeed a blow, so that at their commencement they could not be distinguished from the adjacent injured parts.

The progress of this species of tumor is slow; and it has, in many cases, remained during two or three years before it acquired the size of a hen's-egg. As it increases in bulk, it advances, like most other swellings,

towards the surface of the body ; the integuments covering it become thinner ; at last they adhere to it, are discoloured, and ulcerate.

When the swelling is of considerable size, it has commonly a soft and very elastic feel; and I have known several cases, where a sense of fluctuation was so striking, that a lancet was plunged into the tumors, in order to discharge the supposed contained fluid. In one of those cases, where the tumor surrounded the knee-joint, an attempt was made by a surgeon to discharge the contents, but no fluid was found. Another surgeon, who was present, being still more decided in his opinion as to the presence of a fluid, made an incision much deeper, but with the same success. A fungous tumor afterwards arose from both the openings, hectic fever came on, and the patient soon died. Indeed, in whatever part of the body this disease occurs, and becomes an object of external examination, this deception of the presence of a fluid is very re-

markable. It is particularly so in the testicle; for, in four cases of Fungus Hæmatodes in that organ, which have come to my knowledge, the tumor was punctured for a Hydrocele.

When the skin covering the tumor ulcerates, there is generally an oozing of bloody sanies in place of a purulent fluid; and in a few hours after the ulcerative process has commenced, a *fungus* begins to rise, which rapidly increases in bulk.

The appearance of this fungus may be considered as one of the most striking and diagnostic characters of the Fungus Hæmatodes. It has not the regular smooth surface of the fungus of the eye-ball, for, in general, the conjunctiva forms the external covering when the eye is the seat of the disease. In the extremities, it is generally of a rounded form; it has an unequal ragged surface, giving the tumor a raspberry or cauliflower appearance, and clotted blood often adheres to it. It is of a dark red colour, is easily torn, and bleeds on the smallest fric-

tion. It has generally a very narrow neck, and in some cases spreads out so much as completely to cover the edge of the ulcerated integuments. During the process of ulceration, the skin covering the whole tumor does not become uniformly thin, and of a dark-red colour, as takes place during the formation of a common abscess. This change takes place in one particular part, and is accurately circumscribed, so that the integuments continue thick and unaltered, contiguous to the part where the fungus has burst through them *. When the fungus acquires a very large size, the most prominent parts begin to lose their life, and slough away, rendering the discharge which always accompanies the disease extremely fetid, and often a considerable hæmorrhagy takes place.

The *absorbent* glands are contaminated during the progress of the disease, and those glands swell which are in the course of the circulation. Sometimes this happens early,

* Vide Mr Hey's Practical Observations, &c. page 284.

and when the *primary* tumor has only acquired a small bulk.

At other times, the swelling of the glands does not appear until the skin covering the original tumor has ulcerated ; and, in some cases, the fungus which arises through the ulcerated integuments, acquires a large size before any of the glands become affected.

As in most other diseases, the kind and the degree of pain which the patient suffers are extremely various. When the tumor is small, it generally gives little uneasiness ; as it increases, it becomes more tender to the touch ; and when it is situated in the vicinity of a joint, or a part exposed to much friction, it sooner becomes troublesome and inconvenient. In some cases it has a frequent sharp stinging pain darting through it ; and when the disease is far advanced, it is generally attended with acute pain.

Before the disease advances to a fatal termination, the swelling of the glands, and the number which are affected, are often

prodigious, particularly in the inferior extremities ; for here the glands, along the course of the iliac vessels and aorta, all contribute to form one formidable diseased mass within the abdomen.

2.—*Appearances on Dissection.*

The appearances on dissection of *Fungus Hæmatodes* in the superior and inferior extremities, much resemble those changes of structure which are seen in the eye-ball. The primary tumor exhibits the true *medullary* appearance in its internal structure. The limits of the tumor are, in general, accurately defined, when it has not attained a very large size. It commonly consists of distinct portions or lobes, separated from one another by thin membranous intersections, and an indistinct kind of sac or capsule is formed, surrounding the whole tumor. When the tumor acquires a very large size, the neighbouring muscles become involved in the diseased mass, and I have seen bundles of muscular fibres interspersed in various parts

of the tumor ; its form then becomes very irregular, and its limits cannot be accurately ascertained.

The colour of the tumor, when small, is generally of a pale gray, or brownish red hue ; but when it is large, the different portions which are separated from one another by capsules, assume very different appearances, the general mass being thus composed of a number of parts, differing in colour and in structure. Some of these are of the colour and consistence of brain ; some are of a deep yellow colour, and some of them have the colour and consistence of the boiled yolk of an egg : some portions are of a dark red colour, like masses of coagulated blood, and others more resemble *liver*. Sometimes portions of it are of a dark red colour, and cavities are found between the different portions, containing blood, or a thin bloody serum.

The *absorbent* lymphatic glands, which are affected during the progress of the disease, are converted into a matter resembling, in

every respect, the structure of the *primary* tumor.

In Plate IV. there is a drawing of the external appearance of a tumor of this kind in the fore-arm; and in Plate V. there is a section of the same case, which shews distinctly the peculiar structure of this species of tumor. The patient, from whom these drawings were taken, was under the care of Dr Brown; and it is from his politeness I had an opportunity of dissecting the tumor, and of laying the case before the public.

The patient was a woman forty-seven years of age. About three years before she came under Dr Brown's care, she perceived a small tumor, the bulk of a common garden-pea, underneath the skin of the back of the fore-arm, a little above the wrist, which was quite moveable. It increased gradually to the size of a hen's egg, in which state it continued for two years. After this period, it increased rapidly, and she was advised to get it removed. The operation was performed, and the wound

healed up, excepting a spot about the size of a shilling, which was suddenly affected with a violent stinging pain. The surface of this ulcer began to be elevated above the surface of the adjacent skin, and increased after that time, so as to attain the size of the tumor represented in the plate.

The amputation of the arm above the elbow joint being thought the only safe mode of practice, the operation was performed, and the wound healed by suppuration.

I examined the structure of the tumor, by making a perpendicular section through it, leaving one portion attached to the *radius*, the other to the *ulna*; the former of these is represented, in Plate V. The whole mass resembled, in a very remarkable degree, a portion of *brain*, in colour, consistence, and every external character; and as the arm was injected with coloured size, many vessels could be traced throughout the substance of the tumor, being a strong proof of its organization. It became also, like brain, softer by exposure to the air, and readily mixed

with water. It appeared to be composed of several distinct portions, separated from one another by thin membranous partitions. One of these portions, larger and more distinctly circumscribed than the others, formed the part of the tumor nearest the elbow, and had several small cavities in its substance, containing a fluid tinged deeply with blood. The other portions were smaller, more irregular in shape, and extended in a direction from the bone to the external surface of the tumor. The blood-vessels which were injected were also observed taking a similar course, though they were not numerous. In one place, the tumor adhered slightly to the periosteum, but did not appear to have formed with it any remarkable vascular connection. The integuments which covered the base of the tumor could be readily dissected from it, the different portions being enveloped in a firm membranous capsule.

In Chap. I. I took particular notice of the changes which were observed in the struc-

ture of the optic nerve, when Fungus Hæmatodes appears in the eye-ball. An examination of the *nerves* in other parts of the body affected with the disease is an object of considerable importance. I am enabled to add one important fact on this part of the subject, and for which I am in a particular manner indebted to Dr Monro senior. As the case is also a strong illustration of the most striking characters of the disease, I hope the following extracts, taken from Dr Monro's notes, will not be unacceptable.

CASE XVIII.

“ A lady, twenty-seven years of age, in the year 1798, observed a swelling on the anterior part of the right fore-arm, the origin of which she could attribute to no cause, except that she had been bled some months before by an ignorant person, and had been accustomed to ride a hard-trotting horse. The swelling gradually increased, and at last attained the size of a goose-egg, and it was accompanied by a pain, as

if exposed to a burning flame, which stretched from the point of her fingers up to the wrist. There was an obscure fluctuation in the tumor, but no pulsation, and the fore-finger was benumbed.

“ On the 17th of June 1801 the tumor was opened, and two or three ounces of a bloody water were discharged, which was inclosed in a thick, fatty, membranous cyst. After the water was evacuated, there was a soft substance observed in the bottom of the cyst, like clotted blood. The tumor was afterwards extirpated, and the radial nerve was incorporated with the back of the cyst, so that the cyst could not be extracted without cutting it.

“ The sore healed in about a month, and she continued well till March 1802, when the tumor returned, and increased rapidly to a great size, and from which a *fungus* grew out. The arm was amputated in October 1802, and the radial nerve being examined, both above and below, the tumor was found connected to it by threads like nerves, and the under part of the nerve was as large as the upper.

“ In January 1804 she was seized with shivering and pain in her head. Soon thereafter a tumor appeared over her left eye, which was about the size of a chesnut, extremely painful to the touch, and the left *eye-ball* seemed enlarged and protruded. On opening the head after the patient's death, the brain was found in a fungous state; and the tumor, on being cut, resembled *medullary* matter.”

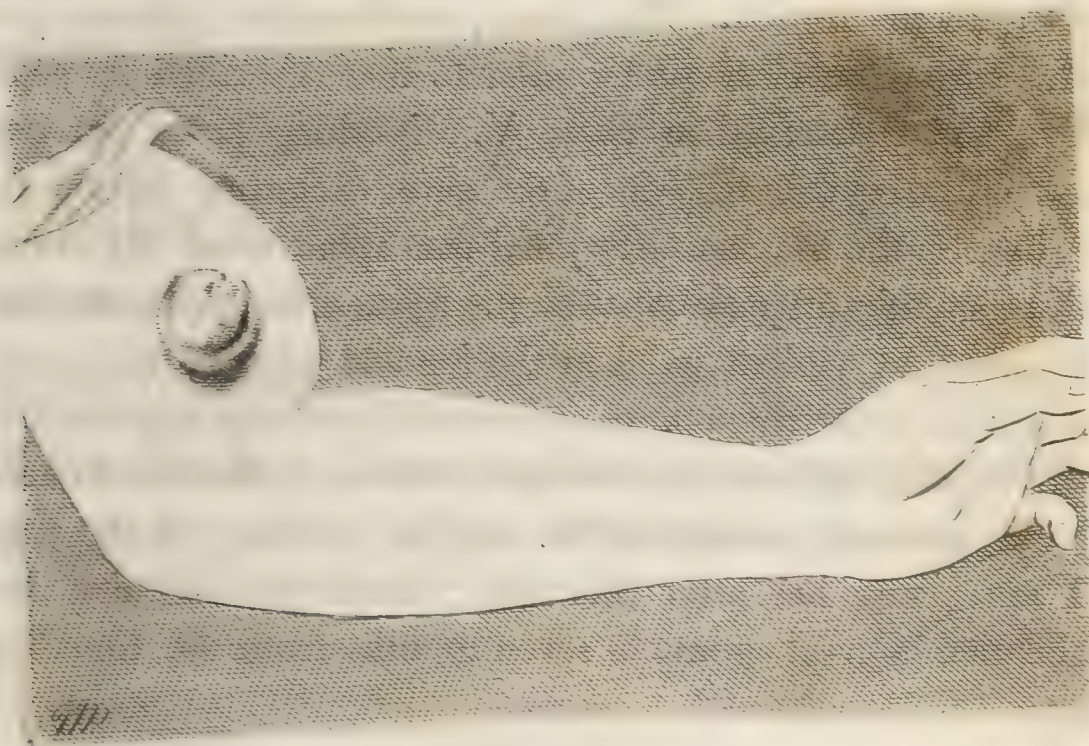
In several cases of *Fungus Hæmatodes* of the eye-ball, it was observed, that, before the patient's death, other organs of the body also became affected with the disease. The same

thing takes place when Fungus Hæmatodes appears in the extremities. In a case, afterwards to be related, where a large Fungus Hæmatodes formed on the hip-joint, the same disease was found, on dissection, to have appeared in the *kidney*. In the foregoing case (Case XVIII.), the brain was affected, the primary disease having appeared in the forearm. In the fifth volume of the London Medical Journal, there is a case described by Mr Dease of Dublin, in which the disease began in the hand, and, on dissection, "the liver was found to have a small *steatoma* on its convex surface."

A very interesting case of Fungus Hæmatodes, beginning in the arm, and afterwards attacking the *mamma*, was under the care of Mr George Bell, some years ago, with an account of which he has been so obliging as to favour me. As this case, also, shews well the general form of this species of tumor, and the appearance of the fungus arising after the integuments have ulcerated, I have ad-

ded to Mr Bell's account of the case an outline taken from a cast of the diseased arm.

CASE XIX.



“ Two years ago, a swelling appeared on the arm of a lady, about fifty years of age, near the insertion of the tendon of the biceps muscle. It increased gradually and uniformly from that time, impeding, as it became larger, the motion of the joint ; and although at all times uneasy, yet it did not give her any great pain. Five weeks before she came to Edinburgh, the tumor became suddenly more painful, acquiring, at the same time, a considerable increase of

bulk. The gentleman who then attended her, suspecting that suppuration was about to take place, applied emollient poultices, and, at the end of a fortnight, the most prominent part of the tumor burst, and discharged a quantity of thin, bloody, ichorous matter. The discharge continued, and became very offensive to the smell; the pain increased, the swelling enlarged, and a *fungous* excrescence appeared at the opening from which the matter had been discharged. She became feverish, restless, and uneasy; and the case being considered *cancerous*, she came to Edinburgh. The amputation of the arm being thought necessary, the operation was performed. The tumor, on dissection, presented a structure in every respect similar to that described in page 107, and delineated in Plate V. Nothing particular occurred during the progress of the cure, excepting that the ligature on the brachial artery did not come away till about three months after the operation. Soon afterwards, she was attacked by violent pains in the leg and thigh, which were supposed to be rheumatic, and several swellings appeared in the breast, and one near the spine, which, from what I could learn, probably resembled the original swelling on the arm. I never saw her after this time; but I was informed that she died in great agony, in seven months from the time the arm was amputated."

Fungus Hæmatodes takes place, perhaps, more frequently in the extremities than in any other part of the body. It has been already mentioned *, that Mr John Burns first

* See General Observations, page 2.

published a general description of this disease in these parts: there are, however, some cases of fungus hæmatodes described in works published prior to that of Mr Burns; but it seems evident that the nature of the disease was not understood.

An account of one of these is given by Dr Monro, in the edition of his works published by his son, entitled, "*An Anomalous Tumor of the Leg unsuccessfully treated.*"

As the account of the case is extremely accurate, and leads Dr M. to draw some very acute conclusions with regard to the nature of the disease, I insert the following abstract of it.

CASE XX.

A TUMOR appeared on the outside of a woman's leg, forty-six years of age, attended by excruciating pain, hectic paroxysms, and night sweats. Dr M. believing the tumor to contain a fluid, an opening was made into it. "Not one drop of pus was discharged, only two or three ounces of mucus dropped out." When the dressings were remov-

ed, the day after, “ a *fungus* appeared at the orifice, which resembled the flabby *tunica cellulosa*, so often to be seen in the back, and other depending parts of those that die of tedious lingering diseases. I cut off some of this fungus, put gentle escharotics on the remains of it, and dressed the rest of the wound with suppurants. On the second day, the fungus came out much larger, and violently stretched the aperture of the teguments and tendinous aponeurosis, by which a gangrene was begun all round the edges. I cut off the fungus, enlarged the orifice considerably, and dressed it up with antiseptics and suppurants, in the common way. In two days, the gangrened parts fell off, and, the aperture being now very large, I dissected from between the two bones of the leg near a pound of flabby substance. After having cut as deep as I durst, without risking the opening of the large arteries, I thrust a probe through that soft fatty substance, till I felt it and saw it striking against the skin of the opposite part of the leg.

Expecting, therefore, no success from this method, I resolved to perform the amputation as soon as the fever and diarrhoea, which were now come on, were abated ; but neither were stopped by any medicines given, and in a few days the patient died.

The skin of all the leg appeared, after death, sound ; but the *tunica cellulosa* and muscles were all degenerated into that pappy substance which had appeared as a fungus, and I could not distinguish one muscle from another, though I was at pains to dissect them.

The periosteum was everywhere separated from both tibia and fibula. Between it and the bones, an acrid dark brown liquor was contained, and the surfaces of the bones were rough and yellow.

I had occasion, soon after, to see a leg affected with just such another sort of tumor ; but it was opened sooner, be-

fore any other bad symptoms had come on. It would not cure with either external or internal medicines, and the patient would not allow amputation, so that it was palliated, till both surgeon and patient wearied of each other."

Having finished his account of the case, he makes the following very pertinent queries :—

" Pray, gentlemen, under what class of tumor is this to be reckoned ? Is it akin to the windy swellings of the joints, or to what the French call the *fatty tumors* ?

" If you know the species of tumor, what is the pathognomic sign by which it is to be distinguished from *erysipelas-adematodes*, or the slow phlegmons ; for *I am much afraid of falling into some such mistake as the former, unless you will explain the difference to me ?*"

Mr Pott, in his surgical works, when treating of the diseases of the extremities which require amputation, makes the following observations :

" There is," says he, " another kind of complaint affecting the leg, removable (as far as my experience goes) by amputation only, which is one reason why I mention it in this place, and to which I might add another reason, which is, that it either derives

its origin from a bursten artery, or at least is accompanied by it.

“ I know no *name* to give it, or under what *class* to range it, but will describe it in the best manner I can.

“ It has its seat in the middle of the calf of the leg, or rather more towards its upper part, under the gastrocnemius and soleus muscles. It begins by a small, hard, deep-seated swelling, sometimes very painful, sometimes but little so, and only hindering the patient's exercise. It does not alter the natural colour of the skin, at least until it has attained a considerable size. It enlarges gradually, does not soften as it enlarges, but continues, through the greatest part of it, incompressibly hard; and when it is got to a large size, it seems to contain a fluid, which may be felt towards the bottom, or resting, as it were, on the back part of the bones. If an opening be made for the discharge of this fluid, it must be made very deep, and through a *strangely distempered mass*. This fluid is generally small in quantity, and con-

sists of a sanies, mixed with grumous blood. The discharge of it produces very little diminution of the tumor; and, in a few cases which I have seen, very high symptoms of irritation and inflammation come on, and, advancing with great rapidity, and most exquisite pain, very soon destroy the patient, either by the fever, which is high and unremitting, or by a mortification of the whole leg.

“ If amputation has not been performed, and the patient dies after the tumor has been freely opened, the mortified and putrid state of the parts prevent all satisfactory examination; but if the limb be removed, without any previous operation, (and which, as far as my experience goes, is the only way of preserving the patient’s life,) the arteria tibialis postica will be found to be enlarged, distempered, and burst; the muscles of the calf of the leg to have been converted into a *strangely morbid mass*, and the posterior part of both the tibia and the fibula more or less carious*.”

Whether this disease, described by Mr

* See Pott’s Works, Vol. iii.

Pott, is to be considered as Fungus Hæmatodes, or a disease of the arteries, may be by some disputed. The description appears to me to accord more with that of fungus hæmatodes, than with any other morbid alteration of structure with which we are acquainted; at the same time, it is so imperfect, saying nothing more of the structure of the tumor, than that "it is a strange distempered mass," that we cannot draw from it any satisfactory conclusion.

The same remarks will also apply to two cases mentioned by Mr Freer *; for in neither of them is there to be found, in the account of the dissection of the tumor, any of those appearances which I have attempted to point out as characteristic of Fungus Hæmatodes.

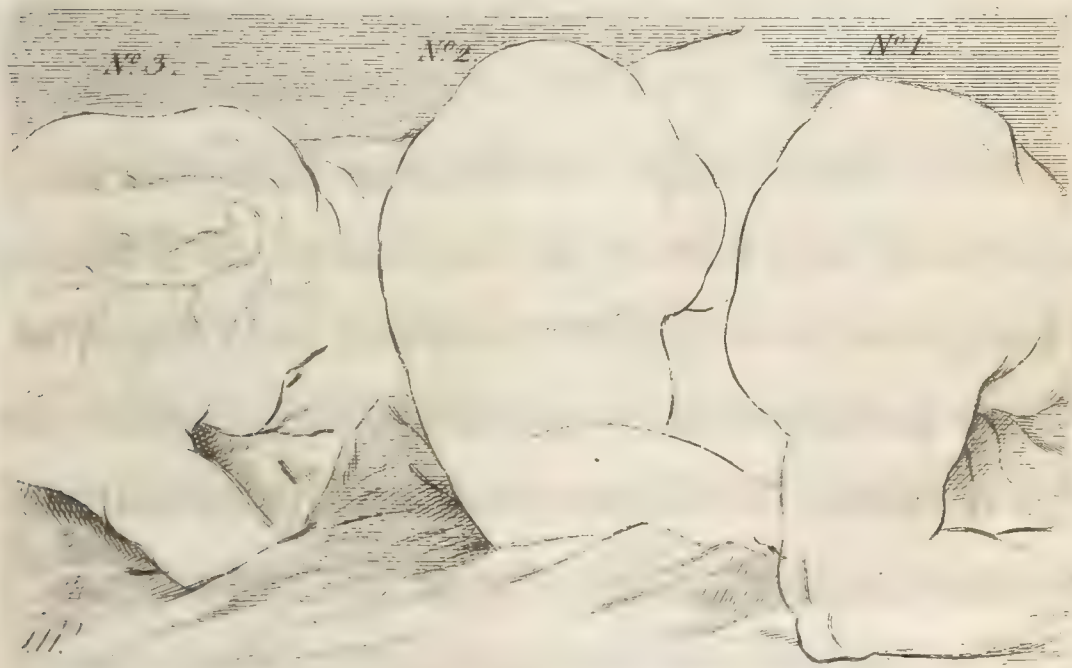
It has been already noticed, that a case of fungus hæmatodes in the hand † is described, in the fifth volume of the London Medical Journal, by Mr Dease, and quoted

* See Observations on Aneurism, p. 25. Birmingham, 1807.

† See Page 112.

by Mr Burns. Mr Burns has also given an account of four cases which came under his own immediate observation. In three of these, the disease took place in the inferior extremities, and in the other, it appeared on the upper part of the shoulder. Mr Hey has mentioned two cases of the disease in the superior, and three in the inferior extremities. Mr Abernethy has also given the account of a case on the thigh of a boy, twelve years of age.

In the Collection of the *Ecole de Medicine* at Paris, there are drawings of three cases of a disease in the shoulder-joint, called by the French *Carcinome Sanglante*, from which I took the annexed outlines.



Though I could not get any particular account of the cases, the great resemblance which these sketches have to the drawing given by Mr Hey, and to a case of fungus hæmatodes of the shoulder I had an opportunity of seeing, under the care of Mr Astley Cooper, leave little room to doubt but that they are representations of the true fungus hæmatodes.

The outlines give a good idea of the general form of the tumor when it appears in that part of the body, No. 1. shewing it when small, and Nos. 2. and 3. in its successive stages.

3.—*Of the Treatment of Fungus Hæmatodes in the Extremities.*

The same want of success has generally attended all efforts in the cure of Fungus Hæmatodes in the extremities, as I have already mentioned regarding this disease in the eye-ball. All external and internal medicines avail nothing ; and the only chance

of saving the patient's life, is by an early removal of the whole limb. In a considerable number of cases, which have come within my knowledge, and in many of the cases which have been recorded by Dr Monro, Mr Burns, Mr Hey, &c. an attempt was made to cure the disease by removing the tumor alone. But in every one of these, the practice was unsuccessful, the disease afterwards returning at the place where the tumor was removed, in the neighbouring absorbent glands, or in some other organ of the body. From the event of these cases, we would be warranted in urging the removal of the whole limb, as soon as the true nature of the case is perfectly ascertained. When, therefore, the nature of the tumor is suspected, an opening may be made into it, and the structure which is found, will enable an accurate and decisive judgment to be formed of the necessary treatment. If the case prove to be fungus hæmatodes, the limb should be immediately removed, and if otherwise, it must be treated according to what appears to be the nature of the disease.

CHAP. IV.

OF THE FUNGUS HÆMATODES IN THE TESTICLE.

1.—*External Appearances of the Disease.*

THIS disease of the testicle was first described, and is also delineated, by Dr Baillie, in his *Morbid Anatomy*, under the name of the *pulpy testicle* *. “The testicle,” says he, “is sometimes much enlarged, and converted into a uniform pulpy matter, in which its natural structure is entirely lost. This sort of change has been sometimes mistaken for scirrhus, but it is very different from what is called scirrhus in other parts of the body, and what is also

* See the *Morbid Anatomy* of some of the most important parts of the Human Body, p. 350, 1807.

found in the testicle itself." Notwithstanding the accurate description given by Dr Baillie, there are still many facts, both in the history of Fungus Hæmatodes of the testicle, and in the appearances of the tumor on dissection, which merit investigation.

The disease is found, in some cases, to begin in the body of the testicle ; in others, its origin has been remarked by a tumor forming in the *epididymis*. The progress of the disease is very slow, and, as the swelling of the gland increases, the tumor retains an oval or globular form, and it becomes difficult, if not impossible, to distinguish the body of the testicle and epididymis from one another. The pain attending the disease is generally so trifling as to excite little alarm, and there is no inequality or hardness in the gland, or any change in the structure of the scrotum.

When the testicle has increased considerably in bulk, it becomes remarkable for its softness and elasticity, and produces the sensation of containing a fluid. In relating the

symptoms of Fungus Hæmatodes in the extremities *, it has been particularly noticed, that a sense of fluctuation is one of the striking characters of this species of tumor, in all those parts of the body where it could be examined externally. It is, perhaps, even more so in the Testicle than in any other organ; and an accurate diagnosis between Fungus Hæmatodes of the testicle and *hydrocele* is a great desideratum in the practice of surgery. The proportion of cases of this disease which have been treated as hydrocele by experienced and judicious surgeons is almost incredible. Four cases where this took place have come within my own observation. In Dr Monro's collection of morbid preparations, there is one of a testicle where this mistake happened. In the collection of Dr Jeffrey of Glasgow, there is also an example of the disease preserved where the same accident took place.

The want of transparency in the tumor is one appearance in the fungus hæmatodes of the testicle which might be expected to lead

* See page 110.

to an accurate diagnosis between it and hydrocele ; but as there are many collections of water in the vaginal coat of a dark colour, and sometimes even of blood, and as the vaginal coat is often very much thickened, this cannot be always regarded as a diagnostic symptom. The fungus hæmatodes of the testicle, when of considerable bulk, though resembling many of the more frequent varieties of hydrocele in shape, yet, on inquiry, will not be found to have had a similar progress. In hydrocele, the water begins to collect at the bottom of the scrotum, and the testicle may be generally distinguished at the posterior part, until the tumor has acquired a very large size ; whereas, in fungus hæmatodes, the disease commences in the body of the testicle, or in the epididymis, and the whole gland gradually enlarges. The tumor, too, in hydrocele, is accurately circumscribed towards the ring, whereas, in the fungus hæmatodes, there is a gradual swelling or fulness, extending up from the testicle along the spermatic cord. In those cases of Fungus Hæ-

matodes which I have seen, it was difficult to distinguish accurately the nature of the change in the spermatic cord, though, in all of them, a particular kind of fulness was perceptible, very different from the unyielding hardness of a scirrhus affection of this part of the body. Besides the want of transparency in the tumor, its progress, and the state of the spermatic cord, the comparative weight of it to what a hydrocele of an equal bulk would be, ought also to be taken into consideration, in judging of the nature of the disease.

The softness and elasticity of the swelling does not remain in all cases after it has acquired a great bulk, for, when large, it often becomes in some places hard, in others very soft, as if soon going to burst. The veins of the scrotum also become varicose, and the skin discoloured. The absorbent glands become contaminated in the groin of the same side with the affected testicle; and a case of this disease is given by Mr Abernethy *,

* See Observations on Tumors, page 52.

where the glands in both groins swelled. Generally, before the disease proves fatal, the glands along the course of the spermatic cord, within the abdomen, swell, and form, in many cases, a very large mass of disease, surrounding the great artery and vein.

In no case have I ever been able to learn, that the integuments of the scrotum have given way, and a fungus grown from the diseased testicle. From the history of this disease in other organs, we would have expected this change to have also taken place in the testicle ; but the irritation and fever created by the extent of the glandular affection which takes place, as well as the state of the testicle itself, seems to put an end to the patient's sufferings before such a change as ulceration and the production of a fungus could take place.

Fungus Hæmatodes affects the testicle, as well as most other organs of the body, more frequently in early life. A case of it was under the care of Mr Cline, of a boy five years of age ; and in those cases, with the particu-

lars of which I have become acquainted, most of the patients have been under thirty years of age.

In many of the cases, the disease has been supposed to originate from a blow, or some kind of injury, in others, to have been connected with, or to have succeeded a venereal affection. But, in the investigation of the history of diseases, we are too apt to attempt to find out their exciting causes, and to attribute them to fortuitous events. In cancerous and scrofulous affections, this mode of reasoning is very common, though there can be little doubt but that both these diseases make their appearance without any exciting cause, the nature of which we are able to trace.

2.—*Appearances on Dissection.*

The appearances on dissection of Fungus Hæmatodes in the testicle, are very similar to those which have been observed to take place when the disease appears in the extremities of the body, or in the eye-ball. Fungus Hæmatodes in the testicle presents, per-

haps, more variety in its appearances than when it affects the eye-ball, but this probably arises, not from any specific difference in the diseased process, but from that variation in structure which is observed in the healthy state of the different organs; the phenomena of the same disease being always found to vary more or less, in every texture in which the disease takes place, though there are always some leading and prominent features, which give the peculiar character to the disease, in the organ it happens to be developed.

The pulpy or *medullary* appearance, so remarkable in other parts affected with Fungus Hæmatodes, is also the striking character of fungus hæmatodes in the testicle. The medullary-looking matter is generally of a pale brownish colour, at other times more of a red. Sometimes the whole gland is converted into one mass of this nature, having very much the same appearance throughout, whilst, at other times, it is composed of parts varying in consistence, in colour, and in texture, and separated from

each other by thin cellular sheaths. Some of these subdivisions of the morbid mass are much softer than fresh brain, and have more the consistence of custard, but they never seem to degenerate into a puriform fluid; other parts have the degree of firmness of common polypi, or of liver, whilst some portions have been found cartilaginous, having *spiculæ* of bone formed in the cartilage.

When the gland is immersed in water, a great proportion of these substances readily mix with it, and there remains a loose cellular-looking tissue, in which the pulpy matter had been deposited. In one case (Case XXII.) the analogy to the Fungus Hæmatodes in the eye was very remarkably illustrated; for, on making an opening into the vaginal coat, where it had formed a circumscribed tumor from adhesions to the albuginea, a *fungous* tumor, larger than two field beans, covered by the albuginea, was observed to have risen out of the body of the testicle, resembling in structure and colour the fungus from the eye-ball.

In most cases the vaginal coat and albuginea form strong adhesions; in others they remain separated, the intervening space being generally filled with a fluid.

The *absorbent glands* which are contaminated when the testicle is affected, exhibit the same appearances on dissection as what have been already noticed when the primary disease is seated in other parts.

In those cases which I have had an opportunity of dissecting, I have never been able to detect any change in the structure of the *spermatic cord*, or been able satisfactorily to account for the peculiar fulness which I have observed to take place in it during life. From the appearances, however, which were observed by Mr Cooper in the dissection of the cord in Case XXV. it is not improbable that the swelling may arise from a diseased state of the absorbent vessels.

With the view of still further illustrating this important subject, I shall add an account of five cases of *Fungus Hæmatodes* in the tes-

ticle, all of which afford striking examples of the disease.

CASE XXI.

THIS case, with an account of which I have been obligingly favoured by Mr Newbigging, one of the surgeons of the Royal Infirmary of Edinburgh, affords an example where Fungus Hæmatodes appeared, not only in the testicle and the absorbent glands, but also where the Liver, Lungs, and Kidneys seemed to be affected with the same disease.

“ The circumstances of the case of pulpy testicle appear from some notes I have upon it to have been as follows :

“ A man, about twenty-eight years of age, had a swelling of the left side of the scrotum, the size of a goose-egg, which had been forming for nine months. As, from its shape, the sensation it communicated on pressure, and its being attended with no pain, it was believed, by many surgeons who examined it, to be a *hydrocele*, it was determined to perform the operation for the cure of that disease.

“ However, in attempting the operation, the testicle was found diseased, only a small quantity of water having collected in the cavity of the vaginal coat. It was therefore thought necessary to remove the testicle, which was done in the usual manner.

“ Almost the whole wound healed by adhesion, and it was completely cicatrized in three weeks. About this time, the patient was affected with pectoral complaints, accompanied with hæmoptysis, and a tumor, the bulk of a large fist, also formed over the upper lumbar vertebræ, the nature of which could not be accurately ascertained by any external examination, the only remarkable symptom with which it was attended, being a very strong pulsation communicated from the aorta. He soon died, with all the symptoms of hectic fever.

“ On examining the testicle after extirpation, it exhibited the following structure : It was elastic, though soft, and of a dark brownish colour. A number of small sacs, containing a transparent, and somewhat glairy fluid, were in various parts of its substance, and a small quantity of coagulated lymph was found in the cellular membrane, betwixt the vaginal coat and scrotum.

“ On opening the abdomen after death, the spermatic cord of the affected testicle appeared indurated, and several swelled glands were observed adjacent to it, and stretching in a chain to the very large mass of disease, which had been felt during life through the abdominal parietes. This mass seemed to be chiefly composed of a cluster of diseased glands. It was soft when cut into, had a dark-brown colour, and in some parts of it was formed a quantity of thickened grumous blood. This tumor surrounded the aorta and vena cava, the coats of the latter being evidently diseased, and its canal apparently somewhat lessened.

“ In the *liver*, there were many tubercles, containing a thick blackish fluid.

“ In the pelvis of the *kidney*, a quantity of purulent matter was formed.

“ The *lungs* were tuberculous, some of the tubercles being also filled with a thick blackish fluid.”

CASE XXII.

FOR this, and the following case, I am in a particular manner indebted to Dr Thomson, and by the assistance of his notes, I have been enabled to give a fuller account of the dissection of the diseased parts, than I would otherwise have been able to do.

This patient, who was twenty-five years of age, had observed, three years and a half before his death, a tumor in the scrotum, the bulk of a small bean, which appeared to him to be attached to the right Testicle. He attributed its origin to a syphilitic affection in the form of bubo, which he had had eighteen months before. In two years and a half from

the appearance of this small tumor, the testicle had acquired the bulk of an orange, but of an oval form ; it was hard and very painful when pressed upon, and its surface was equal. The spermatic cord was also somewhat hardened and enlarged, and he felt a dull gnawing pain extending up its course. At this period he took a small quantity of mercury for several weeks, and solutions of the acetite of lead were applied to the scrotum with little or no benefit. Blisters were also applied to the scrotum, but the testicle always continued to increase in bulk. At last, after having complained of pain in the belly for several days, a tumor was felt in the right side of the umbilicus ; it was of a rounded form ; gave a sense of fluctuation when pressed upon, and was painful to the touch. The swelling of the testicle and tumor in the belly continued both to enlarge and to give excruciating pain, till at last, after having brought on symptoms of hectic fever, he died.

Appearances on Dissection.

I had an opportunity of carefully examining the diseased parts with Dr Thomson, and the various appearances which were observed, rendered the dissection extremely interesting. The testicle, when removed from the scrotum, appeared to be an oval shaped body, about eight inches in its longest and five inches in its shortest diameter, and weighed four pounds. It was soft and elastic, and seemed in some parts to contain a fluid.

By dividing the testicle in several different parts, it was found to be composed of distinct portions or lobes, which differed from one another in colour and in structure. The number of them could not be ascertained, as one section exhibited four or five principal divisions, and another section made it appear to be composed of many more. These larger divisions were separated from one another by firm

cellular capsules, and their layers were detached from the capsules, forming numerous subdivisions of each of the lobes. The whole mass presented a spongy structure, formed of cells, which varied from an almost imperceptible size to such as would admit the last joint of the little finger. Some of these cells were filled with a serous looking fluid; others with a fluid tinged with blood, and others with coagulated blood.

On comparing the structure of the lobes with one another one of them resembled very much a portion of *brain*, both in colour and consistence, and it was observed that a *fungous* tumor, about the bulk of two field beans, had arisen from this lobe, and pushed forwards the albuginea. Another lobe had a more chalky whiteness, and, on pressing it, a fluid resembling medullary matter, mixed with water, oozed out from innumerable small cells. A third lobe appeared more vascular, of a darker colour, and of a more fibrous structure. A fourth lobe was variously intersected with cellular membrane, by which cells were formed, some of them filled with a fluid, some with a yellowish substance, resembling in colour and consistence the boiled yolk of egg, and others with cartilage, some parts of which were converted into bone. Nothing like sound structure could be perceived in any part of the mass. The vaginal coat adhered almost to every part of the albuginea, and, where no adhesion had taken place, cavities were formed, filled with fluid, in one of which the *fungous tumor* above mentioned was contained.

The tumor in the cavity of the abdomen presented a very extensive mass of disease, surrounding portions of the mesentery and intestines, and involving the large vascular trunks. No very material difference could be perceived in the structure of this tumor from that of the testicle, except that the cells were much larger, the texture more fibrous, and the

whole mass much looser. When cut into, it had more of a honeycomb appearance; in some places it felt harder than even the testicle; and, in several points, *ossification* could be distinguished.

Two tubercles of a similar nature to the disease in the testicle and abdomen were found in the *liver*.

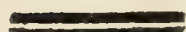
CASE XXIII.

“A YOUNG man, about eighteen years of age, had a considerable swelling in the right side of the scrotum, which was of a uniform shape, very soft to the touch, and seemed to include the *epididymis* as well as the body of the testicle. The spermatic cord, as it passed from the testicle to the abdomen, appeared to be but little enlarged.

“After a ligature was applied to the spermatic vessels, the testicle was dissected out in the usual manner, and the wound continued for several days to have a healthy appearance. On the sixth day after the operation, he complained of a pain in his belly, which was aggravated on pressure. This pain was, at no time, very severe, but he had one or two hectic paroxysms, and died on the tenth day.

“On opening the belly, I found the spermatic cord sound within as well as without the abdominal ring, but there was a considerable enlargement of the lymphatic glands, lying along the fore and lateral parts of the lumbar vertebræ. The glands, when cut into, were of a uniform white colour, and soft consistence, some of them having acquired the bulk of a small fist.”

CASE XXIV.



THIS case, which was under the care of Dr Wardrop several years ago, affords a good example of fungus hæmatodes in the Testicle. It also shows the danger in mistaking the disease for *hydrocele*, and the little advantage to be expected from extirpating the testicle.

A patient, thirty-three years of age, had a swelling of the right testicle the bulk of two large fists, and of a very globular form. Its surface was equal and smooth, and it felt hard and tense. The pain which attended it was compared by the patient to the pricking of pins, which sometimes darted with violence along the spermatic cord and across the loins. The cord, as far as the external abdominal ring, was enlarged, hard, and painful on pressure. The scrotum was of a deep purple colour, the veins on its surface varicose, and at the inferior part of it there was some degree of œdema. On the middle and anterior part of the scrotum there was a small opening, which allowed a probe to pass upwards about an inch under the skin, and from which there issued a copious discharge of purulent matter. This swelling had commenced eight months before, without any known cause, except severe bodily exertion. At the end of five months it had only attained the size of a hen's-egg. After this period, the increase was very rapid, and it continued so for three weeks.

Ten days before he came under Dr Wardrop's care, a surgeon who attended him, conceiving the swelling to be a

hydrocele, plunged a trocar into it; but after two attempts, which gave him little pain, nothing came away but a large quantity of blood mixed with water. The bulk of the swelling was very little diminished by the operation. Matter formed round the opening made by the trocar, and continued to be discharged through it. The testicle was extirpated, as affording the only hopes of saving this patient's life.

For a few days the febrile symptoms appeared to be alleviated, but they soon returned, and he died in twelve days after the operation.

The testicle weighed two pounds; the vaginal coat and albuginea were firmly adhering to one another, and the gland was converted into a soft pulpy mass, in various parts mixed with blood, none of the natural structure remaining. On opening the abdomen, a chain of swelled glands were seen stretching from the internal abdominal ring to a large diseased mass which was situated on the lumbar vertebræ. This mass seemed to be altogether composed of diseased glands, the whole of which, as well as those along the cord being converted into a *pulpy* matter, parts of which were as soft as cream, others being firmer than brain.

CASE XXV.

MR ASTLEY COOPER, in an ingenious paper in the *Medical Records and Researches*, entitled, "Three instances of obstruction of the thoracic duct, with some experi-

ments, showing the effects of tying that vessel," has given a description of one case of a disease in the testicle and absorbent glands of the belly, which appears to me to be an example of Fungus Hæmatodes. I shall extract those parts of it which appear most important for our present purpose.

A labouring man, twenty-two years of age, was admitted into St Thomas's Hospital. "The account which he gave of his complaint was, that about five months before he had been attacked with a pain in the testis of the right side, which soon after swelled, and had continued to the present time gradually enlarging; and that, seven weeks previous to his admission, he had observed a tumor in the abdomen, on the same side of the umbilicus. The testis, at the time he became an hospital patient, was of considerable size, but preserved its natural figure, being flattened on its sides, and round on its fore-part; its substance felt *pulpy*, yet not sufficiently soft to give the sensation of fluctuation; the spermatic cord was somewhat enlarged. The tumor in the abdomen, though small when he first observed it, now was at least four inches in diameter, and although it was not, in the beginning, attended with uneasiness, it now occasioned very considerable pain. His general health, however, had not suffered, for he seemed equal to any labour, and his countenance exhibited no marks of disease." A fortnight after his admission into the hospital, he complained of great pain in the abdomen, extending in a line from the testicle to the tumor. He lost his health and strength, his pulse became quick and feeble, his skin hot, continual thirst, restlessness, loss of appetite, and disordered bowels. He also complained of a disagreeable sensation of distention in the upper part of the abdomen, after taking a small quantity of food, which continued for several hours. These symptoms, along with vomiting, all increased, and, in little more than ten weeks from his admission into the hospital, he died.

Appearances on Dissection after Death.

“ On making an incision into the enlarged testicle, a *pulpy* mass appeared, composed of broken coagulable lymph, and of a blood-coloured serum.

“ The *absorbents* of the spermatic cord were very considerably enlarged, their coats thickened, and small tumors appeared at irregular distances, arising from a diseased and enlarged state of their valves. These vessels were entirely impervious, and contained matter similar to that found in the testicle, which adhered firmly to their internal surfaces. The small glands on the loins, which receive the absorbents of the testicle and cord, by their enlargement and union formed a tumor on the lumbar vertebræ, weighing nine pounds and a half.

“ On opening the tumor, it exhibited a similar appearance to the testicle, and there could be no doubt of the disease being of the same nature.

“ The appearance of the *thoracic duct* was much altered, its coats were thickened and opake, and it was rounder than usual, bearing more resemblance to a nerve than to the principal trunk of the absorbent system.

“ The *receptaculum chyli* was filled with matter of the same kind with that found in the tumor, in the absorbents of the spermatic cord, and in the body of the testicle. It adhered with firmness to the inner coat of the vessel, which was thickened, opake, and irregular.

“ The *thoracic duct* had undergone a similar change; for, in its cavity a substance was contained resembling that in the other diseased parts, by which the tube was rendered impervious. Opposite to the curvature of the aorta, the vessel was lost in a swelling as large as a moderate sized walnut, differing, in no respect, excepting in bulk, from the swelling in the abdomen. Above this tumor, the duct ap-

peared in a healthy state, and terminated, as usual, in the vein.

“ This disease in the testicle was, I believe, *truly cancerous*. The great pain with which it was accompanied, and the rapid progress it made by absorption, are proofs of the truth of this opinion. And, as the appearance of the duct was the same, I believe that this part also was affected by *cancer*.”

In relating the above case, Mr Cooper's object was to prove that the absorbent vessels possess the same powers as the arteries and veins—that though their canal be obliterated, yet the circulation of the chyle continues by means of collateral branches. Thus a minute investigation of the diseased structure, which might, under particular circumstances, produce an obstruction of the thoracic duct, became an object of secondary importance. It therefore appears to me, that, from the testicle and gland, in this case, presenting the pulpy or medullary appearance, the disease ought rather to be considered a case of Fungus Hæmatodes than of Cancer.

3.—*Of the Treatment of Fungus Hæmatodes in the Testicle.*

Of the treatment of this disease in the testicle, little requires to be said ; for I have never become acquainted with an account of a single case that has been relieved, either by internal medicines, or by the extirpation of the diseased testicle. In all the cases which I have known, where an ope-

ration was performed, the patient died in a few weeks afterwards; and there could be little doubt, that their death was much accelerated by it. From the difficulty of detecting the disease in its early stages, an operation, I believe, has been resorted to in those cases only where it had made considerable progress, and when either the absorbent glands in the groin, or those within the cavity of the abdomen, had been contaminated. There is, therefore, still room to hope, if a diagnosis, sufficiently accurate, could be established between this disease in its early stage, and other diseases of the testicle, that the life of the patient might be saved by extirpation. These observations naturally lead us to conclude, that, in any case where the presence of fungus hæmatodes in the testicle is suspected, the safe and prudent practice would be to open the vaginal coat, and if the appearances warrant the removal of the gland, to proceed immediately to the operation; or otherwise, if the disease

be of a more favourable nature, as a *hydrocele*, it should be treated according to the usual mode employed in such cases.

CHAP. V.

OF THE FUNGUS HÆMATODES IN THE LIVER.

1.—*Appearances on Dissection.*

WHEN the liver is affected with fungus hæmatodes, a pulpy mass is formed in its substance, which, when exposed to the air, soon becomes very soft, and when macerated in water, the softer parts mix with it readily, and are washed away, a firmer part remaining, which has the appearance of a delicate fibrous, or rather cellular structure. The colour of the tumor varies in different parts, being in some nearly white, or of a pale yellow, resembling *brain*, and in others

more vascular, having a light red colour. In one case * the tumors had a very remarkable brown colour, mixed in irregular patches among the whiter parts, but, by maceration in water, the brown colouring-matter was washed away.

Tumors of this kind are generally formed near the surface of the liver, and as they increase in bulk they always proceed towards it. When they reach the surface, they form a prominent tumor, which at last destroys the thin peritoneal covering derived from the liver, and throws out a *fungus*, analogous in appearance and texture to what has been already described in the eye-ball and extremities. In some cases, instead of the tumor advancing towards the surface, and producing a fungus externally, cavities are formed in the substance of the liver, into which one or more fungous masses protrude.

The number of tumors which appear in a liver affected with fungus hæmatodes is different in different cases. Sometimes there is

* See Case XVI. and Plate VI. fig. 2.

only one, sometimes two, and sometimes three or four have been found in the same patient. Their size is also very various, but I have never seen any of them larger than a hen's egg.

The limits of the tumor are always readily perceived, though it is never inclosed in any distinct capsule; for the sound liver contiguous to the diseased portion seems gradually to degenerate into the same structure as that of the tumor, and appears to be inseparably connected with it.

As far as I know, no author has given a description of fungus hæmatodes in the Liver. Dr Baillie, to whose works medical men will always refer, as the ground-work of all pathological inquiries, has described and delineated a species of *tubercle* in this organ, of which he gives the following description; and it appears to me to have a greater resemblance to fungus hæmatodes than to any other disease.

“ I have also seen,” says he, “ in the liver, a number of soft tumors, about the size of a

walnut. They were principally seated on the surface of the liver, and consisted of a smooth, soft, brownish matter. This is a very rare appearance of disease. Such tumors would be by some considered as *scrofulous*; but there is no strong evidence in support of their opinion, and there is certainly no resemblance between this sort of tumor, and either a scrofulous tubercle of the lungs, or a scrofulous absorbent gland. *About its real nature, nothing is satisfactorily ascertained.*"

I have never known the liver to be affected with fungus hæmatodes in any individual in whom the same disease had not first appeared in some other organ. In the case mentioned by Mr Dease, formerly quoted *, the *steatoma* which was observed in the liver was, in all probability, a tumor of the same kind as that which had originally appeared on the wrist. In Case XVI. where the disease was first observed in the eye-ball, the liver was similarly affected;

* See page 112.

and in Cases XXI. and XXII. the liver was found diseased where the testicle had been the primary seat of the disease.

Our knowledge of this disease in the liver is yet too limited to be able to point out the symptoms by which it may be distinguished in the living body, from the various other diseases of this organ. It is probable that it is attended with more or less pain ; and the excruciating agony which Mr Burns's patient complained of in the back and loins, may have arisen from the disease, which was found after death to have affected her liver *.

Nor can we even indulge any sanguine expectations of being soon able to find out for it any remedy. The impossibility of detecting the disease in this organ, in its early stages, and its having appeared as a secondary affection in all the cases with which we are acquainted, affords little room to hope for the discovery of any successful mode of treatment.

* See Case XVI.

In addition to the general observations on the appearances of fungus hæmatodes in the Liver, I shall transcribe the notes taken from the dissection of two cases of this disease.

Appearances of the Liver on Dissection in Case XXII.

There were two tumors on the liver, one on the small and the other on the large lobe, and, except the portions of liver converted into these tumors, all the rest of the organ appeared sound.

One of the tumors appeared externally to be an oblong shaped mass, two inches in length, not unlike a piece of coagulated blood in colour, and a little elevated above the natural surface of the liver. It was covered by a thin layer of very vascular lymph, which extended over the edge of the tumor in the form of a thin floating border. The tumor felt pulpy and soft, and a section being made through the middle of it, it seemed of an oval form, and its limits distinctly circumscribed, though it was not inclosed in any kind of sac or capsule; for the sound liver, contiguous to the diseased portion, seemed as if it was gradually degenerating, and converted into the common diseased mass. The tumor was composed of a soft pulpy substance, a great quantity of the softer parts of which escaped while dividing the mass, and these were exactly similar in consistence and in colour to a portion of *brain* which has become soft from incipient putrefaction. I washed the tumor in water, and a great quantity of this white pulpy matter dissolved in it, leaving the firmer parts of the mass more distinct. These were of a bright red colour, and were interspersed and mixed, in various ways, by the white soft parts, so as to produce a variegated appearance.

The redness was most remarkable towards the part of the tumor which was nearest to the surface of the liver, and this appeared to be produced, not only from the greater vascularity at that part, but from the effusion of small quantities of blood. When put in water, the firmer portions of the tumor separated into a great number of filamentous parts, which extended in a direction towards the surface of the liver, this being probably the direction of the blood-vessels.

The second tumor projected a considerable way beyond the natural surface of the liver, forming a circumscribed fungous mass, the surface of which was not quite smooth, apparently from the effusion of thin layers of coagulated lymph. It was about the bulk of a chesnut; in some parts its colour was livid, in others blue, and in some parts there were streaks of a bright red. It was very soft, and extremely delicate to the touch; for whenever any portion of the external surface was rubbed off, a quantity of thin *medullary* looking matter oozed out. The portion of it which was in the substance of the liver, resembled that of the other tumor, only being rather less firm.

Dissection of the Liver in Case XVI.

Two tumors were found in the liver of this patient, both of which were seen on its surface; one of them being about one inch diameter, and the other three quarters of an inch*. The latter (*a*) was considerably elevated above the surface of the liver, and was of a grayish hue, mottled with black blotches. On making a section of it, it appeared to be of a rounded form. It was composed of a pulpy mass, like

* See Plate VI. fig. 2.

firm *brain* in consistence. Some parts were of a white, and the others of a dark-brown or black colour, the same as observed in the eye-ball. The larger tumor (*b*) presented appearances quite analogous. There was an intervening portion of sound liver between the tumors. The tumors were not inclosed in cysts, but were immediately connected with the sound liver, the line of division between the sound and diseased portions being distinctly marked. "There was also a cyst in the substance of the liver, filled with a great quantity of grumous-looking purulent matter*."

The representation given in Plate VI. fig. 2. which is taken from the liver in this case, shows well the general appearance of this species of tumor when the liver is affected with fungus hæmatodes.

* See Page 79.

CHAP. VI.

OF THE FUNGUS HÆMATODES IN THE SPLEEN.

IN a patient who died of a disease in the testicle, which had all the appearances of Fungus Hæmatodes, the spleen was felt enormously enlarged, through the abdominal parietes, and was very probably affected with the same disease ; but this fact could not be ascertained, permission not being obtained to open the body.

I have had an opportunity of seeing the spleen affected with this disease in only one case, the preparation and an accurate account of which was sent to me by Mr G. Monteath, then house-surgeon to the Royal Infirmary of Glasgow.

In this patient, there were soft pulpy tumors in each groin, and a very large mass of swelled glands had formed in the abdomen, which was connected at one part with the Spleen.

The spleen was much enlarged, weighing two pounds and a half. Every part of it was studded over with white tuberculous masses, which slightly elevated its external surface, and, on making a section of it, a number of rounded and oval-shaped masses, most of them about the bulk of chesnuts, and some of them smaller, were seen in every part of the organ, and so close to one another as to leave only small portions of sound spleen between them. These tubercles were of a uniform white colour, and consisted of a white pulpy matter, resembling *brain*, which appeared to be inseparably connected with the sound structure. As this case affords an excellent example, not only of the disease in the spleen, but also in the inferior extremities, I shall give an account of it in Mr Monteath's own words.

CASE XXVI.

“ March 28th 1808.

“ J. F. aged twenty-three years, a tailor, had a tumor the size of two fists, of an oblong shape, lying along the course of Poupart’s ligament, upon the top of the left thigh. It was pretty hard, but elastic, and softer in some parts than in others. No fluctuation, however, could be detected. It was firmly attached by its posterior surface to the neighbouring parts. This tumor had begun three years before, without any known cause ; it constantly and gradually increased in size, and gave him unremitted dull pain. The thigh and leg of that side were much swelled by œdema, and felt so rigid as to render him a little lame.

“ Three weeks before this, a tumor began to form in the right groin, which is at present the length of the little finger, and an inch in diameter, having a knotty glandular feel. It is similar, he says, to what the other was at its commencement.

“ A very small opening was made into the large tumor, with the view of ascertaining its contents. A probe was introduced into the opening, and was easily made to pass in all directions through the tumor, without feeling almost any resistance, or giving any pain. Nothing but thin venous-looking blood issued, which came in considerable quantity, by a constant slow stream, without jets, and without diminishing in the least the size of the tumor. The wound was closed, and healed by the twisted suture. Four days after this he became affected with feverish symptoms, which increased to an alarming degree, attended with a diffused erysipelatous-looking inflammation over *both* tumors, spreading

along the lower part of the abdominal integuments, and upper part of the left thigh. By using diaphoretics, acid drinks, and by the exhibition of purgatives, these symptoms were nearly subdued in seven days, that is, by the 12th of June, when it was observed that both tumors had become remarkably diminished in size, and doughy to the feel, having lost all their elasticity; the œdema of the thigh had also much diminished. Having suffered much in his general health by this attack, he was now allowed wine, with bark in small doses. The tumor burst in two places, and discharged a small quantity of pus. Both the openings, however, healed in three weeks, without any particular treatment. A poultice was now kept constantly applied to the large tumor. About the middle of July, the tumors began again to increase in size, and resumed their elasticity. At this time, a considerable fulness and hardness was observed in the abdomen, along the course of the left psoas muscle. He was now much confined to bed, his pulse kept about 100, and he had considerable nocturnal sweats. By the 10th of August the tumors had become considerably enlarged; the integuments over the large one were reddish, and in some parts of the tumor, there was a sense as if of fluctuation. A seton was passed longitudinally across the tumor, but without giving exit to a drop of pus, though a large probe could, as at the time when formerly opened, be easily pushed, without almost meeting any resistance, through every part of the tumor, and without giving any considerable uneasiness. About six ounces of blood were discharged from the two openings in a few minutes; the discharge, however, was stopped by the application of caddis to the wounds. The whole cord was daily covered with laudable pus, but the tumor becoming much larger and more tender, and his health rapidly declining, it was removed ten days after being inserted. The pain of the tumor now became more urgent,

darting up into the abdomen, and much hardness and fullness could be felt about the umbilicus and epigastric regions. About the 23d of August a dark-coloured ulceration took place on several parts of the surface of the tumor. These ulcerated parts, and the two former openings made by the seton, increased considerably in size, and shewed the contents of the tumor to be in a sloughy state. He was now seized with singultus and retching, and upon the 2d of September, after having been for many hours in a torpid speechless state, he died.

“ Dissection after Death.

“ The tumor of left groin being cut into, its substance, in general, had a white fatty appearance, and was very soft; in some places, however, it had more the appearance and feel of the cineritious part of the *brain*. In some of the cavities formed by the ulceration and sphacelation, there was lodged a small quantity of thin dark-coloured fetid fluid. On laying open the abdomen, the tumor was found to extend up along the inner edge of the psoas muscle to the spine. The contents of the small tumor of opposite groin were exactly similar to those of the left groin, and from it there was a continuation of the same matter, beneath Poupart's ligament, and up along the psoas, to meet the tumor from the opposite side, upon the lumbar vertebræ. The united tumor at this part was very large, and proceeded along the spine, near to the stomach, where part of it ended in the Pancreas, which had become somewhat assimilated to it. Another portion of it terminated in the spleen, *which was very large, weighing two and a half pounds*, and was almost totally converted into the same *medullary*-looking matter with the tumor. The tumor, where lying over the upper lumbar vertebræ, was of an enormous size, and tuberculated upon its surface. The inguinal, iliac, and lum-

bar glands were all involved in the tumor; some even of the detached mesenteric glands were enlarged and changed in texture. The aorta passed through the centre of the tumor, but when it was cut open, its coats, &c. seemed free from disease. The iliac and commencement of the femoral arteries were also completely included in the tumor, and the ureters passed through it in their course to the bladder. The tumor adhered very firmly to the spine, which did not appear diseased, and, proceeding down along the psoas muscles, it gave off considerable detachments, which entered the pelvis, and nearly filled up that cavity. The tumor within the abdomen being cut out, independent of the spleen, weighed six pounds, and at least three pounds remained in the pelvis and groins, which could not be conveniently removed. The liver and stomach were natural, also the kidneys, except that they were very soft. Some of the folds of the intestines had formed adhesions to each other. The cavity of the bladder was diminished, from the pressure of the tumor. There were several extensive adhesions of the pleuræ, but otherwise the thoracic viscera were natural. The structure and appearance of the tumor in the abdomen was exactly like to that of the groins, and in some parts of it collections of a cream-coloured fluid were found."

The spleen is more rarely found diseased than most of the other organs of the body; and it would appear, that in the foregoing case, it had become contaminated with Fungus Hæmatodes, in consequence of its adhesion to the morbid mass of glands in the ab-

domen. Fungus Hæmatodes of the spleen has, as far as I know, never been described in any account of the morbid anatomy of that organ.

CHAP. VII.

OF THE FUNGUS HÆMATODES IN THE KIDNEY.

IN a patient of Mr Allan Burns, where a very large fungus hæmatodes had formed over the hip-joint, the Kidneys were also found altered in structure ; and I have little doubt, from the appearances, that they were affected by the same disease.

The tumor of the hip-joint presented all the striking characters of fungus hæmatodes, and resembled so much a section of the testicle in Case XXII., that a gentleman, well accustomed to examine morbid parts, mistook the one for the other.

When the contents of the abdomen were examined after death, one of the Kidneys appeared rather larger than natural.

On its convex margin were observed three prominences, of a whitish colour, about the breadth of the nail of the fore-finger, and there were also several light-coloured spots on different parts of its surface, of a small size. The kidney being divided into two equal portions, the diseased masses were cut into. One of these sections is represented in Plate VI. fig. 1. The three large white portions (*a a a*) were nearly equal to one another in size, each being of a very irregular shape, and some sections showing them to be five or six irregular-sided masses.

The limits of the tumors were readily distinguished from the sound structure, the colour of the former being of a gray, that of the latter, of its natural brick-red. On examining the tumors, however, with a magnifying glass, they did not appear to have any distinct capsule; but the diseased portions seemed to be closely and inseparably connected with the sound liver, by an intimate intertexture of the two structures. Every part of the tumors had the same light-gray colour, but

variously interspersed with florid red streaks, which were produced by the ramifications of blood-vessels. They had also, throughout, the same degree of firmness, being rather softer than the sound kidney, and not giving that gritty sensation to the edge of the knife, which is observed in the healthy organ. In no part, however, was the disease so soft, or of the same consistence as brain. The other kidney presented similar appearances.

The morbid alterations of structure observed in the kidneys, would not perhaps be alone sufficient to warrant us in considering this case as an example of fungus hæmatodes. But a tumor, indisputably of this nature, being observed in the hip-joint, and in many other cases several organs of the same individual having been affected with this disease,—these circumstances, along with the diseased appearances of the kidneys, are strong grounds for considering it as an instance of fungus hæmatodes.

CHAP. VIII.

OF THE FUNGUS HÆMATODES IN THE LUNGS.

DR BAILLIE has remarked a species of *tubercle* in the lungs, which, both from the description and delineation he has given, appears to me to have a great analogy to fungus hæmatodes *.

“ I have seen another sort of tubercle,” says he, “ in the lungs, which I believe to be very rare. It consists of a soft tumor, formed of a light-brown smooth substance. This is not contained in any proper capsule, but adheres immediately to the common structure of the lungs. In cutting through seve-

* See Morbid Anatomy, page 71, and plate.

ral of these tumors, I did not find any of them in a state of suppuration. They were commonly as large as a gooseberry, and were chiefly placed on the surface of the lungs; some, however, were scattered through their substance, of a smaller size."

I have never had an opportunity of examining this disease in the lungs; but there is little doubt, not only from the accurate account quoted from Dr Baillie's work, but from the lungs suffering, in several cases, where other organs of the same individual were affected with fungus hæmatodes, particularly in Case XXI., that they are subject to this disease.

Of its symptoms in these organs, and of its diagnosis from the various other species of *tubercles* with which they are so often affected, nothing is at present known; it is, however, a subject which well merits future investigation.

CHAP. IX.

OF THE FUNGUS HÆMATODES IN THE UTERUS.

FROM the description which has been already given of fungus hæmatodes, and its analogy, in many cases, to Cancer, it is by no means improbable, that fungus hæmatodes of the uterus has been often mistaken for a cancerous affection of that organ.

A very remarkable specimen of this disease was obligingly sent to me by Mr Burns, from which the annexed sketch was taken.

On opening the abdomen of this patient, the intestines were found adhering to one another. The *uterus* was as large as the fist, hard and ragged about the os uteri; and, by the extent of the ulceration, the whole anterior part of the vagina, and the posterior part of the bladder were destroyed. The bladder and

vagina were thus formed into one cavity; and what remained of the former was considerably thickened. From the body of the uterus, a dark-coloured soft and spongy *fungus* protruded into the cavity of the abdomen, which resembled, in a striking manner, the fungus from the other organs affected with this disease.



The sketch represents this tumor of the uterus, viewing it from the abdomen. (*aa*) Are two threads which are attached to the peritonæum, and suspend the preparation; (*bb*) is one of the fallopian tubes;

and (*ccc*) is the fundus of the uterus much enlarged, and with the fungus growing from it. The history which Mr Burns gave me of this case was, "that the woman's health was much impaired, having well-marked hectic fever. She suffered constant pain about the back and pelvis, and there was an incessant fetid discharge from the vagina, which excoriated the external parts, when allowed to remain for any length of time in contact with them. She had also been weakened from repeated hæmorrhagies from the uterine system.

"On examination, the os uteri was felt indurated and prolapsed, and its margins ragged. When the finger was gently pressed on the orifice of the womb, she complained of pain, which was also brought on by going to stool. Six months before she had perceived any swelling in the pelvis, or discharge of matter from the vagina, she was much debilitated by a severe attack of menorrhagia. After this, she never recovered her health; and, from the time the local affection became evident, she sunk rapidly."

CHAP. X.

OF THE FUNGUS HÆMATODES IN THE OVARIUM.

IT may be remarked, that, in the account given of fungus hæmatodes in the testicle, liver, and lungs, I have quoted a description of a disease in these organs from Dr Baillie's *Morbid Anatomy*, to which he had affixed no name; and though, in that valuable work, no analogy is mentioned between the disease in these different organs, yet the peculiar appearances of that morbid alteration of structure did not escape the notice of that accurate observer.

Fungus Hæmatodes will probably be seldom met with in the ovaria. Dr Baillie re-

marks *, that “ the ovaria are sometimes very much enlarged, and converted into a *pulpy* matter of a smooth uniform texture, and cells are often formed in a part of this substance which contain a fluid.” It appears to me by no means improbable, that this description is taken from ovaria affected with fungus hæmatodes. I have only seen one diseased ovarium, which I suspected to be of this kind. The ovarium was swelled to an enormous size, being a rounded shaped mass, about nine inches in diameter. The peritonæum which covered it was nowhere ulcerated, and its surface, though smooth, was not entirely equal. On dividing it through the middle, it appeared to be composed of a variety of different lobes, divided from one another by thin cellular capsules†. All these portions differed from one another in colour and in texture, one of them (*a*) resembling *brain*, another (*b*) being much firmer, and more vascular, and a

* See Morbid Anatomy, page 388.

† See Plate VI. fig. 3. and explanation.

third (c) having little tenacity, and of a light-orange colour; and, in many places, cavities containing blood were placed among these lobes.

CHAP. XI.

OF THE FUNGUS HÆMATODES IN THE FEMALE BREAST.

IN the description which Mr Hey has given of Fungus Hæmatodes, three cases are mentioned where the female breast is said to have been affected by it. In none of these cases, however, nor in two others which I carefully dissected, and which appeared to be very analogous to those mentioned by Mr Hey, was there that *medullary* structure in any part of the tumor which has been found to be a constant appearance in fungus hæmatodes, in all the other organs where it has been met with. I would, therefore, be led to doubt of the nature of the disease in the

cases alluded to, had not fungous tumors arisen from the cicatrix, and being aware, at the same time, that a very considerable difference may arise in the appearances of this disease in the different organs, the natural structure of the mamma being as unlike that of the sound eye-ball or liver, as the same disease in these organs.

The tumors of the mamma, in the cases which I examined, had an unequal tuberculated appearance externally, when the integuments covering them were removed. By dividing them, they appeared to be composed of several smaller masses, which differed from one another in structure. They had, however, one general character, which Mr Hey has mentioned in his cases—that the whole divided surface was covered, immediately after being cut through, with a transparent glairy fluid, which exuded from numerous small cells interspersed everywhere through the tumor. Maceration in water did not dissolve any part of the mass. The lobules were separated from one another by

firm membranous intersections, which formed to some of them nearly a complete capsule. The lobules themselves were different from one another in colour and consistence, giving the whole tumor a firm and elastic feel. Some of them were of a pale gray colour, interspersed with spots of a light brown; others were of a light purple shade. All of them had a firm and very elastic feel, and in some of them there were portions resembling very much, in texture, a piece of softened glue or firm jelly. In one of the cases, the tumor did not appear to be formed in the gland of the mamma, it being seen of its natural structure displaced by the tumor, and the lactiferous tubes passing into it.

The appearances in these two cases, and in those mentioned by Mr Hey, may not be considered by some as the generic characters of fungus hæmatodes; and there are strong grounds for doubt on this subject. There is, however, sufficient reason to consider them as perfectly different from a *scir-*

rhous affection of the mamma, having none of the predominant features of that disease. I am led also to doubt of the nature of these cases, not only from their dissimilarity to fungus hæmatodes in the other organs where the existence of that disease has been ascertained, but from having dissected tumors on other parts of the body, distinctly different from fungus hæmatodes, when it takes place in these parts, the appearances of which were extremely analogous to the affection of the mamma which has now been described.

I formerly took notice, that, besides the eye-ball, the superior and inferior extremities, the testicle, liver, spleen, kidney, lungs, uterus, ovarium, and mamma, there were other parts of the body where fungus hæmatodes had been met with. On the authority of Mr Allan Burns, I mentioned that the *thyroid gland* had been found affected with it, two cases of this kind having come within his observation. There have also been cases where this disease appeared in the *neck*;

and I have been informed, by an intelligent surgeon, that he observed a disease resembling fungus hæmatodes appear in the *fauces* of a young girl, which soon proved fatal.

It is extremely probable, that fungus hæmatodes will be found in many of the other organs of the body, when this subject becomes one of more general investigation, though, at the same time, it is reasonable to expect, from what we know of the history of other diseases, that some organs are much more liable to be affected by it than others.

M

CHAP. XII.

COMPARATIVE VIEW OF THE STRUCTURE OF FUNGUS HÆMATODES AND CANCER.

1.—*Analogy between Fungus Hæmatodes and Cancer, &c.*

FROM the account that has been given of the history and symptoms of Fungus Hæmatodes in several organs of the body, and from the appearances of the disease which are observed on dissection, there are, I think, sufficient grounds to consider it as a morbid change of structure, specifically distinct, and in every point of view different from *cancer*, or any other disease described in nosological systems. The structures of the two tumors

have little analogy to each other, nor are their external symptoms similar; the periods of life at which the diseases take place are different; and some organs are attacked with the one, which have never been observed to be affected with the other.

These differences are found on an accurate examination of the diseases; but when superficially examined, some analogy may be observed between them, which has probably been the cause of their being so long confounded with one another, and classed as one and the same disease.

The progress of both fungus hæmatodes and cancer is generally slow. When ulceration has taken place, neither of them discharges purulent matter, but a thin fetid ichor; and occasionally they bleed profusely. They both sometimes assume a fungous appearance, and, during their progress, contaminate the absorbent glands, which are in the course of circulation; they are also equally destructive, communicating the disease to the neighbouring parts, what-

ever the nature of these may be, whether cellular membrane, skin, muscle, periosteum or bone. Both diseases, too, frequently affect several organs of an individual at the same time. This fact is well known in the history of Cancer, and has been already observed to take place in Fungus Hæmatodes.

Cases of fungus hæmatodes have been also considered by some authors as scrofulous affections. It may be, however, remarked, besides the peculiarity of constitution which is observed to accompany Scrofula and not fungus hæmatodes, the suppuration, and ulceration, which take place in the former, and the formation of a fungus, in the latter; the universal fatality of the one, and the comparative trifling danger of the other—besides these differences in the two diseases, the structure of the two tumors will be found, on accurate examination, to be essentially different; for, instead of the light-yellow, pulpy, tenacious matter which composes fungus hæmatodes, the scrofulous tumor is in-

variably found to be composed of a curdy matter, of a greenish colour, which is gradually converted into a purulent matter.

2.—*General view of the Structure and Appearances in Scirrhus and in Fungus Hæmatodes.*

It has been mentioned, that the structure and symptoms of Fungus Hæmatodes and Cancer are essentially different from one another, even though some slight analogy may be traced between them. I shall now attempt to give a general description of these two morbid alterations of structure, with a view of pointing out these differences, and of affixing precise and definite characters to the names.

The *scirrhus* tumor, from its commencement, is a hard, firm, and incompressible mass, which, by a minute examination, will be found to be composed of two distinct and very different substances. The one is hard

and fibrous, the other more soft, and apparently inorganic.

The *fibrous* substance composes the chief part of the scirrhus mass, and consists of septæ, which are opake, and commonly of a paler colour than the soft part. These septæ are very unequal in their length, breadth, and thickness, and disposed in various directions, so as to form sometimes a solid mass, and at other times a greater or lesser number of irregular cavities, which contain the soft part.

The *soft* or inorganic part is sometimes semi-transparent, of a bluish colour, and resembling, in consistence, softened glue. In other cases it is more opake, softer, somewhat oleaginous, and more resembling cream in colour and consistence.

The proportion and mode of distribution of these two substances, are very different in scirrhus affections of the same and of different organs, and give that great variety which may be observed by examining a number of tumors of this kind. In some, the fibrous

part is most conspicuous, and is condensed into a very solid form, having the appearance of a nucleus, from which septæ come off in all directions, and giving a section of the tumor a radiated appearance. This is perhaps the most usual form of the disease. In some, the tumor is very irregularly shaped, and nearly a uniform hard mass, in which scarcely any defined structure can be traced. In some, the fibrous part has a cellular appearance, the cells being filled with the soft pulpy matter, which can be readily pressed out with the finger. In others, it has cysts formed in it of various dimensions, which generally contain a bloody or dark chocolate-coloured fluid, and have sometimes a fungous tumor growing within them. It occasionally happens, too, that parts of scirrhus tumors acquire a great degree of hardness, being converted into a substance resembling cartilage, in which bony depositions are sometimes formed.

When scirrhus tumors are formed in the substance of a gland, their limits cannot be

accurately determined, the two structures being apparently inseparably connected. At other times they condense the cellular membrane which is in their immediate vicinity, and acquire a more circumscribed appearance *.

Scirrhus tumors change from the state now described to that of suppuration and ulceration. The hard fibrous substance is transformed into a thin ichorous matter, and the dissolution generally begins at the centre of the morbid mass, and extends towards that part of it which is nearest to the surface of the body, or to some of the natural openings. When ulceration has taken place, the tumor does not increase in bulk, but is destroyed by the process of ulceration; and as the disease extends, and the ulcerative process goes on, new organs become involved, and the disease proves fatal, by the extent of parts which it destroys,

* This appearance in scirrhus tumors has been remarked by Mr Abernethy in his Surgical Observations, page 68.

and the universal irritation which such a process creates throughout the system.

It sometimes happens, when the skin covering a scirrhus tumor has ulcerated, that a fungus arises from it, forming a tumor of a cauliflower appearance, and of a very hard, firm texture; but this is by no means the progress in all cases, and if the disease be allowed to proceed, the fungus and original tumor are finally destroyed. It has been observed of some cancerous sores, that, from having been very malignant and painful, they suddenly assume a more healthy appearance at one particular part, and begin to cicatrize. Mr Everard Home * considers the formation of a thin skin on the edge of a cancerous ulcer as one of the most unequivocal symptoms of the disease. This change, however, in the cases to which I allude, is merely a delusion, for always sooner or later

* Observations on Cancer, connected with Histories of the Disease. London, 1805.

the ulcerative process is renewed, and goes on without interruption.

Fungus Hæmatodes presents, on dissection, a very different series of phenomena from the scirrhus tumor. When it appears in the external parts of the body, and has not yet acquired a considerable bulk, instead of being hard and unyielding, it is soft and elastic, and has an equal surface, giving, in most cases, more or less a sense of obscure fluctuation. Its form, when taken out of the body, is determined and accurately circumscribed, having generally a distinct covering of condensed cellular membrane. In place of the hard fibrous-looking substance, the principal component part of scirrhus tumors, the morbid growth in fungus hæmatodes consists of a soft pulpy matter, which mixes readily with water, and is hardened by acids and boiling in water. It has been also compared, by all who have attempted to describe it, to *medullary* matter in colour and consistence. When the skin or covering of fungus hæmato-

des has been eroded by the progress of the disease, instead of the morbid growth being destroyed by ulceration, a fungus arises from it, and the tumor seems only to increase more rapidly in bulk. If the fungus hæmatodes is not interrupted in its progress, both the original tumor and the fungous mass growing from it attain a larger size ; and the fungus, instead of having a firm texture, like that which sometimes arises from the cancerous ulcer, is a dark-red, or purple-coloured mass, of an irregular shape, and of a soft texture, is easily torn, and bleeds profusely when slightly injured.

Cancer seems to be confined to very few organs of the body, and to a few textures ; whereas Fungus Hæmatodes has been detected in parts where no true scirrhus structure has been ever met with. Cancer is found in the skin, in the mucous membranes lining the nose, mouth, fauces, stomach, intestinal canal, and bladder. It affects the

lymphatic glands*, the salivary glands, the mamma, uterus, ovarium, and testicle. But fungus hæmatodes, though it has not been met with in all these parts in its primary form, yet it has been described in the liver, spleen, kidney, and lungs, organs where the scirrhus structure has never been demonstrated.

It is also a striking fact in the history of cancer, that it is nearly altogether confined to those advanced in life. There may be a few exceptions to this general observation, but the instances are extremely rare in which the true scirrhus structure has been met with in any of the parts already mentioned,

* One of the Queries of the Society for Investigating the Nature and Cure of Cancer was, “ Are the *lymphatic* glands ever affected *primarily* in this disease ? ”

There are few cases of cancer which, if allowed to follow their natural progress, do not ultimately contaminate the lymphatic glands ; but if my observations are accurate, I have met with two cases of primary affection of lymphatic glands. In one, a very large scirrhus tumor of a lymphatic gland appeared in the axilla, and advanced to ulceration, no disease being in any of the adjacent organs ; and I have also extirpated a scirrhus gland under the clavicle when the mamma was not affected. Similar cases to the latter have occurred to Mr Abernethy, but I believe they are rarely met with.

in people below the age of twenty-five or thirty *. Fungus hæmatodes, on the contrary, may be rather considered as a disease of early life. In twenty-four cases of it in the eye-ball, only four of them were adults, the others being children from one to twelve years of age ; and in a considerable proportion of the cases where it attacked the extremities, the patients were under the age of puberty.

Both fungus hæmatodes and cancer have been found to affect several organs of the same individual, and this might lead us to suspect that these diseases were not *local*. If we were to judge from the final event of the cases of fungus hæmatodes which have been mentioned, there might be reason to believe that a constitutional taint had originally ex-

* I had an opportunity of seeing an example of a true cancerous sore in a girl about twelve years of age, and it is the only case of the kind which has come to my knowledge. It appeared on the lower part of the abdomen, and begun in the form of a black wart on the skin. The wart ulcerated, and the surrounding skin was gradually destroyed, so as to form an immense ulcer, having all the characters of a true cancerous sore, which at last destroyed the child,

isted ; but when, at the same time, we consider the great progress of the disease in those cases, before an attempt was made to extirpate the affected part, it becomes impossible, from the present extent of our knowledge, to determine whether the disease is, from its origin, merely local, or whether it is originally connected with a constitutional affection. There is one circumstance which, if proved, would enable us to speak with more certainty on this part of the subject, which is, to ascertain whether fungus hæmatodes is formed in a part, the natural structure of which has been previously changed. If this be the case, the *local* nature of fungus hæmatodes becomes probable ; and in many of the cases of this disease which have been recorded, the affected organ had either been exposed to, or had received some injury.

The locality of *cancer* has engaged the attention of many celebrated authors, and, from what is known of the history of this disease, and of the success attending the extirpation

of primary cancerous tumors, there seem sufficient grounds to consider it as a local affection.

3.—*Of the Texture in which Fungus
Hæmatodes originates.*

Thus far an attempt has been made to point out the most striking characters of Fungus Hæmatodes; and some of those appearances have been also taken notice of which are subject to variation, or which arise from the difference in the natural structure of the organ which is affected by the disease. The next object which naturally suggests itself is, to inquire in what particular system or *texture* of the organs does this morbid change originate? Whether does it arise in the vascular, absorbent, cellular, or nervous texture? This question, from the present state of our knowledge, would lead to a discussion a good deal speculative. There are

some facts, however, relating to it, which ought to be brought together, as they are not only interesting to the pathologist, but may lead to some very important practical conclusions.

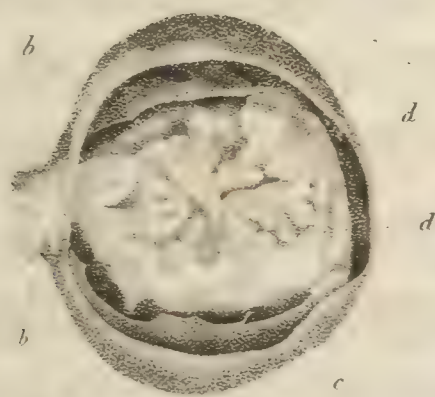
It appears certain, that in all those cases in which the disease affected the eye-ball, we were ignorant of its existence before either the *optic nerve* or *retina* were changed. In all of the cases, an alteration in the structure of the retina, and an imperfection in the exercise of its functions, were the first symptoms of the disease; and in those cases where the disease advanced further, no remains of the retina could be detected, and the structure of the optic nerve itself was changed, even in some as far as its thalamus. In one case* the optic nerve, besides its alteration in structure, was split into different portions by the tumor, which latter seemed to be formed in its internal structure. In another case†, the medullary portion of the

* See Case III.

† See Case XVI.

nerve was changed, and the disease extended just to that place where it loses its *neurilema*, and becomes altogether medullary. In other cases *, the neurilema and medullary portions were equally changed.

By a section of the right eye, in Case VIII. a drawing of which Mr Astley Cooper was so obliging as to send to me, the origin of the disease in the *retina* is so beautifully and so satisfactorily illustrated, that I have added the annexed plate, accurately copied from the drawing.



(*a*) Is the optic nerve, which was apparently in a sound state ; (*bb*) is the sclerotic coat ; (*cc*) the choroid coat, which was observed in this case to be unusually thin ; and (*dd*)

* See Case I.

is the diseased mass into which the *retina* had degenerated, connected only with the optic nerve, and floating in the posterior chamber. The only thing which the plate does not display was a glairy and opaque fluid, which lay between the choroid and sclerotic coats in considerable quantity.

Were we, therefore, to attempt to draw any general inference from observations on fungus hæmatodes in the eye-ball alone, we should be apt to conclude that the disease consists in a morbid change of the *nerve* itself; and that a growth of medullary matter takes place in this disease, analogous to what is observed in new formations of bony matter, of fat, of skin, or of blood-vessels. There are many cases on record, of enormous bony and fatty tumors being formed in various parts of the body; and those cases of large fungi which grow from wounds, and some species of polypi, may perhaps be considered as a mere increase of blood-vessels.

On the other hand, there are circumstances which would rather lead us to sus-

pect that this disease does not arise from the accidental formation of a substance analogous to any of the natural textures of the animal economy, but that it is a morbid matter *sui generis*. When either bone, cartilage, fat, cellular membrane, or skin, are formed in a situation where it did not formerly exist, it is seldom followed by any bad consequences. From its bulk or situation, it may deprive a joint of its motions, or disturb the functions of an organ; but its formation is not followed by any of those evils which invariably take place in the formation of a morbid matter, as in cancer, scrofula, or lues venerea.

The changes to be observed in the nerves, in consequence of disease, are extremely rare, and scarcely can the most skilful anatomist detect alterations in their structure after death, which during life were the source of agonizing complaints. In two cases of the *Tic Douloureux*, M. Dessault, after much patient dissection, could find no deviation

from the natural structure in the nerves of the face; nor can any disease be observed in the nerves of a paralytic limb *. From these observations, we should not expect to find the nervous system undergoing such very remarkable changes as take place in fungus hæmatodes, and particularly in those cases where prodigious swellings are formed on the extremities of the body.

But it is extremely difficult to bring forward on this part of the subject any thing conclusive. It remains, therefore, an object of most interesting inquiry, if, in other parts of the body which are affected with this disease, besides the optic nerve and retina, any change in the structure of the nerves of the organ can be detected. In this investigation, the peculiarity in the natural structure of the different nerves ought not to be overlooked; for it is by no means improbable, that the greater proportion of medullary matter in the optic nerve, the canals in

* Vide Bichât, Anatomie Generale.

which it is contained being larger, and more closely united than in other nerves ; its having one general neurilematic covering, and an artery passing along its axis, leaving branches in its tract, instead of having, like other nerves, vessels penetrating its sides from the neighbouring vascular trunks ;—these peculiarities, in the natural structure of the optic nerve, may perhaps lead to an explanation of some of the peculiar phenomena of Fungus Hæmatodes in this organ ; and the same mode of inquiry may also lead to a successful investigation of this subject in other parts of the body.

EXPLANATION

OF THE

PLATES.

PLATE I.

THE two busts which are given in this plate are intended to illustrate the external appearances of *Fungus Hæmatodes* in the eye-ball. In Mr Cooper's case, a tumor, which was of a livid colour, is seen occupying the right orbit, and a very large tumor projects from below the under jaw, which was entirely composed of diseased lymphatic glands. The surface of the tumor in the orbit, though unequal, is yet smooth; and, on the surface of the enlarged gland, extensive ulceration had taken place.—(See Case IV. p. 43.)

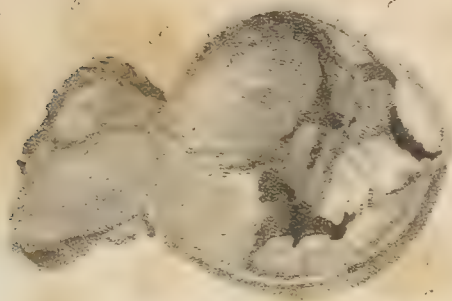
In the other figure there is a representation of the fungus which grew from the orbit after the extirpation of the eye-ball in Case I. It shews the enormous size of such swellings. One half of it is covered by the upper eye-lid, much distended, and the other presents a very ragged dark-coloured fetid mass. There are also three glands of very considerable bulk on the cheek of the same side.

PLATE II.

This plate is intended to illustrate the appearances of Fungus Hæmatodes of the eye-ball on dissection.

Fig. 1. represents the appearances on dissection in Case II. where the disease had not proceeded so far as to alter the natural form of the eye-ball. The engraving was taken from a very accurate drawing, which Mr Russell was so obliging as make for me. (*aa*) Is the optic nerve, enveloped in the diseased mass (*b*), both of which were easily distinguished from one another by a difference in their colour, and being also separated by the neurilematic envelope of the nerve. The posterior chamber is filled with a tumor, intimately connected with, and apparently a continuation of, the medullary matter (*ddee*). The choroid coat is pushed forwards, and partly surrounded by the morbid mass, and is seen in the form of an irregular-shaped bag (*cc*). The tumor could be separated from the sclerotic coat (*ff*) at every part, except near the entrance of the optic nerve, and there it adhered to it so firmly that it could not be dissected from it without being torn.

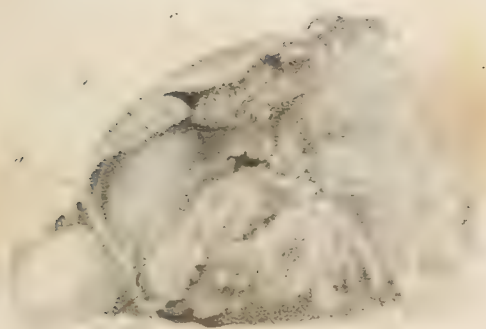
Fig. 2. represents a section of the eye-ball in Case III. taken also from a drawing of Mr Russell's. (*aaaa*) Is an imperfect outline of the sclerotic coat; and a tumor is seen growing from the whole of its internal surface, and also exterior to it, surrounding the optic nerve. The nerve was completely imbedded in the mass of tumor, and appeared to be split into two portions (*bc*), which were of a yellow colour. One of the portions of nerve (*b*) adhered to the sclerotic coat, and the other (*c*) appeared detached from it, and was, as far as could be observed, completely enveloped in the tumor. The neurilema and medulla of the nerve remained distinct from each other in both portions; the external surface of the former adhering firmly to the diseased mass, and the latter was converted into a soft porous substance, of the



Section of the Eye ball Case 3.



Section of the Eye ball Case 1.

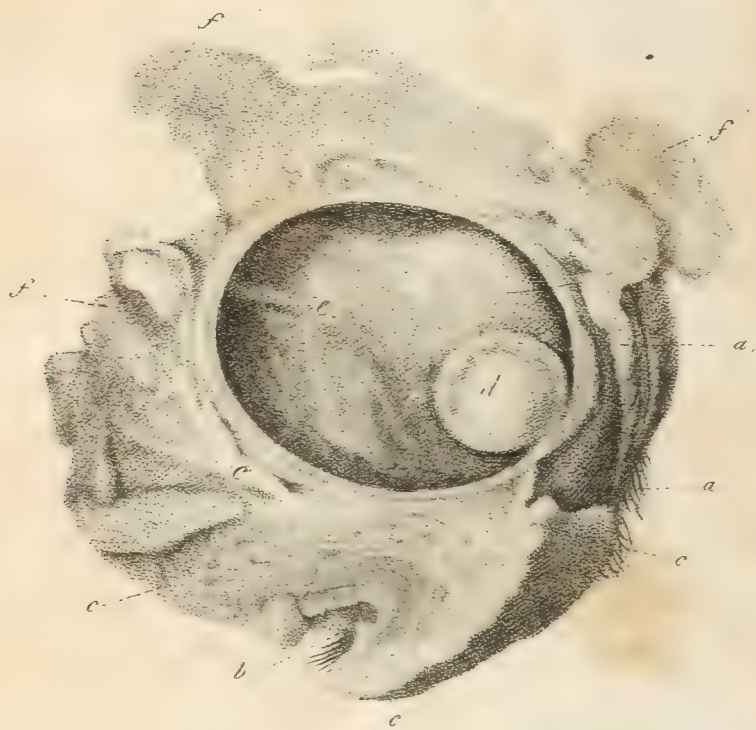




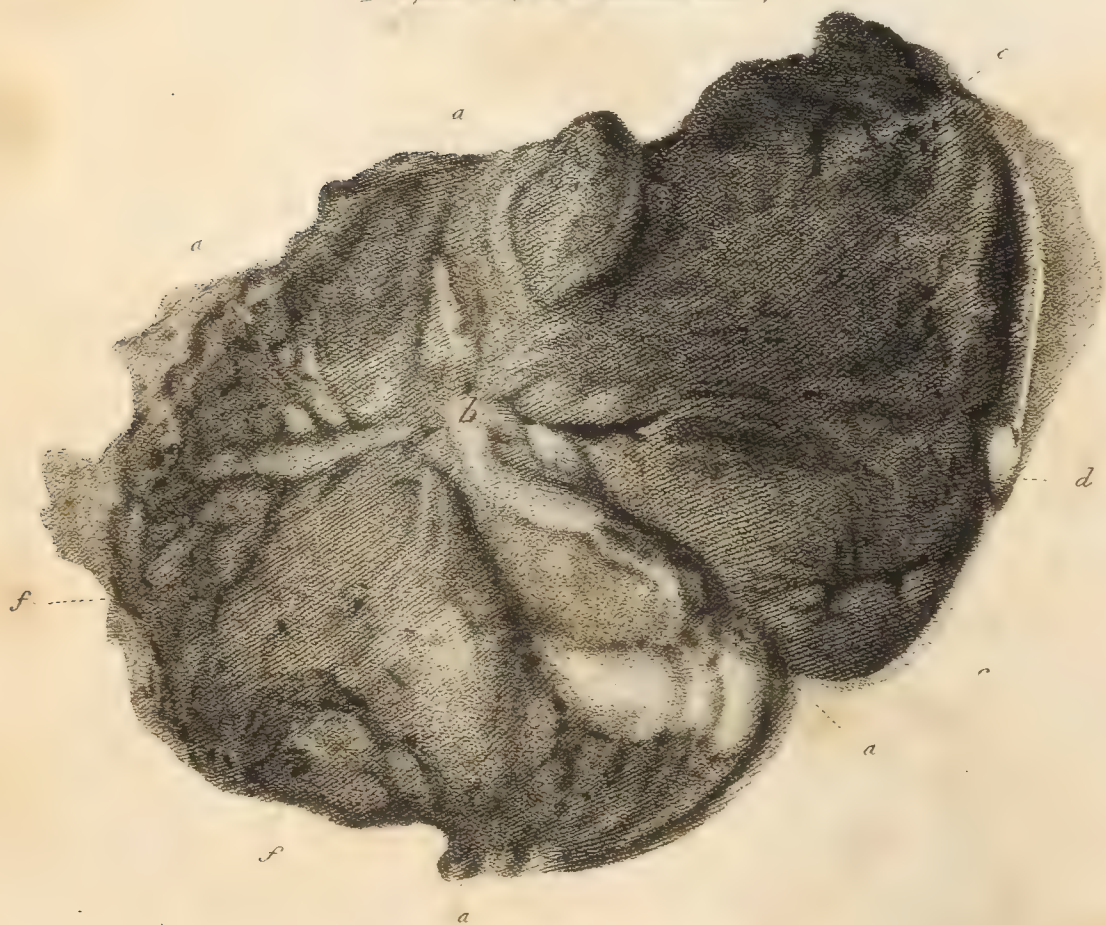
Dissection of a FUNGUS HEMATODES of the Eye Ball



Dissection of a Scirrhous Tumor between the Eye Ball & under Eye lid



Dissection of the Eye Ball. Case 17.



consistence, and of the same shade of colour of the yolk of egg. Every part of the tumor had a soft medullary appearance, and adhered firmly all round both to the external and internal surfaces of the sclerotic coat.

Fig. 3. represents the section of the eye-ball in Case I. taken from a drawing of Mr Syme's, one half of the eye-ball being kept in outline, and the other highly finished. The whole anterior chamber is destroyed, being filled with a soft spongy mass, having no defined structure. (*a*) Is the optic nerve, retaining its round form, but remarkably firm and hard, and no distinction can be perceived between the neurilema and medullary portions of it. (*b*) Is a diseased lymphatic gland, seen in outline, lying on the sclerotic coat, close to the optic nerve. The posterior chamber was completely filled with a solid mass, which had very much the general appearance of brain. Some parts of the mass were firmer than others; and at (*c*) there were a number of particles of a gritty chalky-looking matter. The edge of the sclerotic coat (*d d d d*) is seen of its natural thickness and structure.

PLATE III.

This plate is also intended to illustrate the appearances of *Fungus Hæmatodes* in the eye-ball, and to compare its structure with that of *scirrhus*.

Fig. 1. shows the appearances of the eye-ball on dissection in Case XVI. where the disease appeared in an adult. In this case the morbid mass was remarkable for the dark-colouring matter with which it was mixed. (*aa*) Is the cornea quite sound; (*bb*) are the lacerated edges of the sclerotic coat, which are also split into two layers, a small quantity of the dark-colouring matter being interposed between them. (*cc*) Is the choroid coat, which was much more vascular

than natural ; in some places of five or six times its natural thickness, and insensibly terminating in the white pulpy substance at (*d*) ; and (*eeee*) are white spots, which appeared in different parts of the tumor, after being macerated in water. The optic nerve was of its natural size, but by its section it appeared that the central or medullary part of it had a dark appearance, resembling the morbid structure in the eye-ball, whilst the neurilema, (*ff*), was of its natural pale colour, and apparently healthy. (*g*) Is an enlarged lymphatic gland, also converted into a dark brown-coloured matter.

Fig. 2. represents the section of a scirrhus tumor, situated between the eye-ball and malar plate of the orbit. In this case the whole contents of the orbit were removed by an operation, and, after being kept some time in spirits, the vertical section was made of them, which is represented in the drawing. (*aa*) Is the upper tarsus, from which the *ciliæ* are growing out, and, from the scirrhus tumor being placed between the eye-ball and under eye-lid, the latter is displaced by the tumor, and seen at (*b*). (*ccc*) Mark the boundaries of the scirrhus mass, in the formation of which there are two distinct substances to be distinguished. The one is of an undefined texture, and the other appears in the form of firm fibrous-looking laminae, dividing the former part into many portions.—(See p. 181.) (*d*) Is the crystalline lens, and (*e*) the vitreous humour *in situ*; and (*fff*) is the fat which was contained in the orbit.

Fig. 3. This figure represents the section of the contents of the orbit described in Case XVII. In this instance, nothing like any of the sound structure of the eye-ball could be detected. The morbid mass was composed of a structure a good deal firmer than brain, but, like brain, it became softer a short time after being exposed to the air, and readily mixed with water. Its colour was of an iron-gray, or cineritious gray colour, intermixed with septæ (*aaaa*) of a







paler hue. The septæ, which were extremely irregular in appearance, all converged to a point (*b*), which corresponded to the place where the exterior tumor and tumor contained within the orbit were united. At (*c*) there was a cavity in the tumor filled with grumous blood, and between (*d*) and (*e*) is the anterior portion of the tumor, covered with the extended conjunctiva. (*ff*) Is the posterior portion of the tumor, which was lacerated and torn during the operation.

PLATE IV.

In this plate is seen the external appearances of a Fungus Hæmatodes in the arm, which was described in page 107. The tumor had acquired an enormous bulk, and all the prominent part was one fungous mass, covered with a thin foetid sanies. Some parts of the tumor was of a dark-red colour, others yellow, and some quite putrid. It was soft, and easily injured, bleeding profusely when any part of it was destroyed. The general appearance, form, and bulk of the tumor are well seen in the plate.

PLATE V.

This plate represents a section of the tumor in the arm in Plate IV. and was selected in order to show what may be considered as the most usual appearances in the structure of Fungus Hæmatodes. The appearances on the dissection of this case are particularly alluded to in p. 108. The tumor was extremely like brain, and appeared composed of several distinct portions, separated from one another by thin membranous partitions. The portion of the tumor attached to the radius is represented in the plate, and the head of that

bone is seen at the under corner. A portion of the tumor may be observed larger and more circumscribed than the others, and of a rounded form, in the substance of which were several small cavities, which contained a fluid tinged deeply with blood.

PLATE VI.

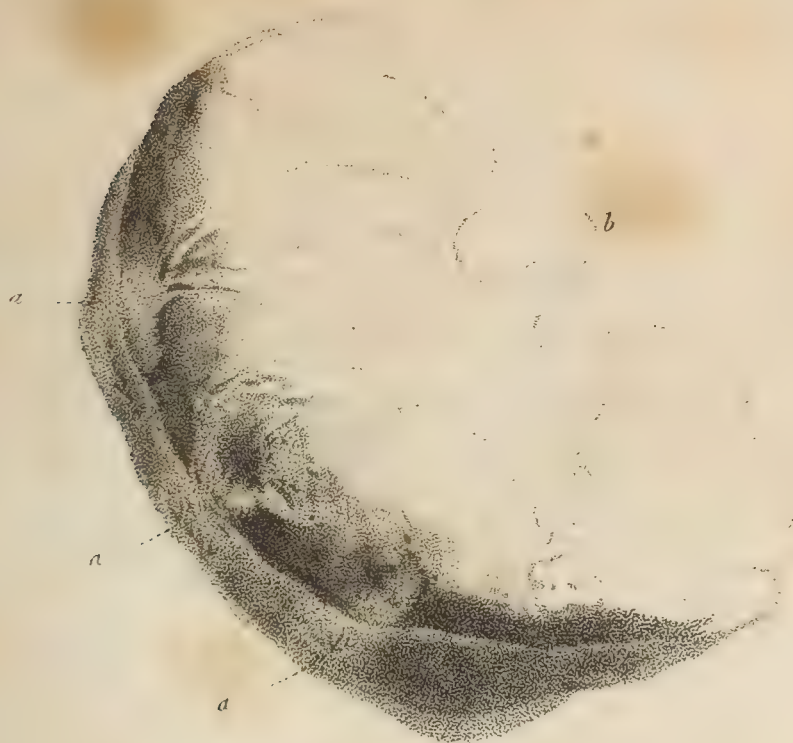
In this plate are represented the alterations of structure which take place in the Kidney, in the Liver, and in the Ovary, when affected with Fungus Hæmatodes.

Fig. 1. shows the section of the kidney, which is described in p. 162. (*a a a*) Represents the three tumors which were observed prominent on its external surface, and (*b*) is the ureter. These tumors were of a pale white colour, rather softer than the sound structure, but so intimately connected with it, that a distinct line of division could not be perceived between them.

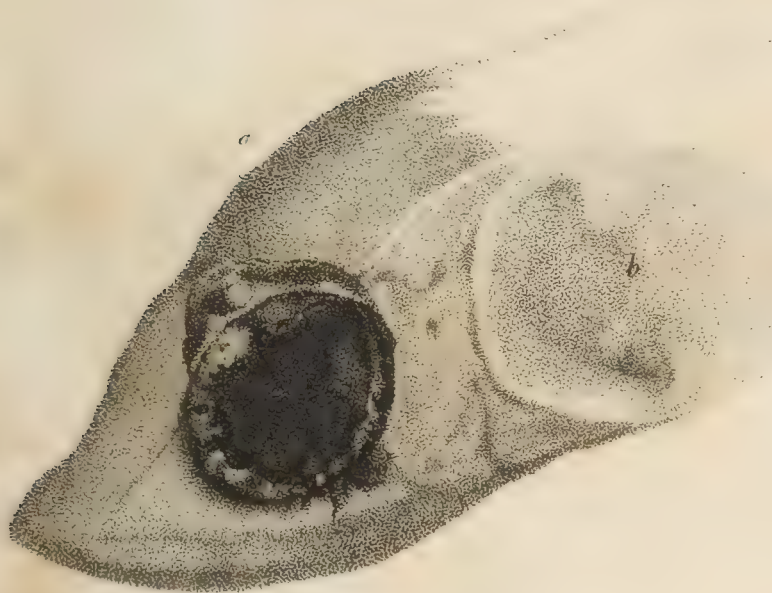
Fig. 2. This drawing was made from the liver in Case XVI. and mentioned in p. 153. Only one of the tumors is minutely detailed, the other I have kept in outline. The figure represents a section of a portion of the large lobe of the liver. (*a*) Is that part of the smallest tumor which appeared externally covered by the peritonæum, and (*b*) is the larger tumor. Both of these had the consistence of a piece of fresh brain, but, in place of being of the same light colour, they were variegated in a very singular manner with a dark-brown matter. This peculiar appearance was observed on the external part of the tumor shining through its peritoneal covering, as well as in the cut surface.

Fig. 3. In this figure I have drawn a general outline of the Ovary, and detailed the structure of only one portion of it. In this case, which is mentioned in p. 170, the ova-

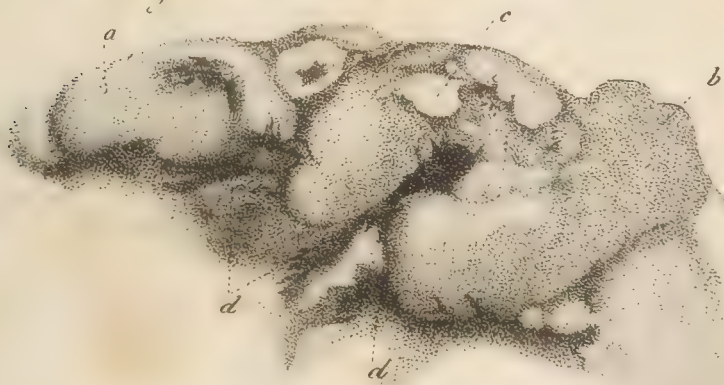
Dissection of a FUNGUS HÆMATODES in the Kidney



Fungus Hæmatodes in the Liver



Fungus Hæmatodes on the Ovarium





rium had become so enlarged as to measure nine inches in diameter ; and the section of it showed it to be composed of a variety of different structures, very analogous to what has been observed in some cases of Fungus Hæmatodes in the extremities, and testicle. All the different portions of the tumor differed from one another in colour and in texture, and were separated by thin capsules, formed of condensed cellular membrane. The portion marked (*a*) resembled brain. (*b*) Was much more firm and more vascular. (*c*) Had little tenacity, and was more like the boiled yolk of egg in colour and consistence ; and between the portions, cavities containing blood were formed (*dd*).

DEC 8 1983

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

Biological
& Medical

